ECONOMY OF PLANTS
IN
THE VEDAS
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THE VEDAS

RAJIV KAMAL

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PREFACE

The theme of this study engaged my attention first when I came across P.V. Sharma’s “Dravyaguṇa Vijñāna, Pt. IV (Vedic Plants and the History of Dravyaguṇa)”. It aroused my interest in the studies of plants and subsequent study of the Vedic and post-vedic literatures brought to light a vast number of trees and plants, which were not simply useful in timbering and furniture but also they possessed medicinal ingredients. The drugs (auśadhi) manufactured from these herbs proved life saving. Therefore a study of the ancient Indian plants seemed quite relevant.

In preparing the work, I received maximum possible assistance and guidance from my teacher and supervisor, Dr. Shatrughna Sharan Singh, Lecturer, Department of Ancient Indian History & Archaeology, Patna University, Patna. I want to place on record my sense of gratitude to him for without his constant guidance supervision and personal care, the work could not have assumed its present shape.

Professor B. Sahai, Head of the Department of Ancient Indian History & Archaeology, Patna University, deserves my respectful thanks for taking keen interest in the thesis.

Professor M.M. Singh and Dr. B.P. Roy, Reader in the Department of Ancient Indian History & Archaeology, Patna University deserve my sincere thanks for offering criticisms from time to time.
My sincere and respectful thanks are due to Professor R.N. Dandekar of the Bhandarkar Oriental Research Institute, Pune, and Priyavrat Sharma (Varanasi) for supplying me some valuable informations and copy of G.P. Majumdar’s articles. Prof. P.V. Sharma no doubt guided me by offering his suggestions through correspondence.

I would be failing in my duties if I do not suitably acknowledge the National Library, Calcutta for allowing me to use their Reading Rooms and supplying Xerox-ed copies of the materials needed. I also thank the Asiatic Society, Calcutta (An Institution of National Importance Declared by an Act of Parliament) for allowing me the use of their Reading Room.

I exploit the opportunity to place on record my gratitude to those savants whose works have been frequently utilised in shaping the present work.

Professor K.N. Mishra of the Sanskrit Department of the Patna University deserves my thanks for sparing time for discussion with me. I am sorry that Late S.M. Abbas formerly library Assistant in the Department of Ancient Indian History & Archaeology, Patna University could not remain alive to see the thesis in the present shape. He untiringly lent out books, journals and periodicals to me.

I also want to acknowledge the debt of my mother who always proved to be the source of inspiration and strength to me. I thank my friends Sri R.B. Sharma and Shri B.N. Dubey, M.A.S., for constantly encouraging me in my endeavour.

In spite of best efforts on my part, I own up all responsibilities for the errors which may have crept in.

Dated: 2.7.87

RAJIV KAMAL
<table>
<thead>
<tr>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>AÄ</td>
<td>Aitareya Āraṇyaka</td>
</tr>
<tr>
<td>AAAVl</td>
<td>Ancient Agriculture and Allied Arts in Vedic India.</td>
</tr>
<tr>
<td>AAFNI</td>
<td>Ancient Agriculture and Forestry in Northern India.</td>
</tr>
<tr>
<td>AB</td>
<td>Aitareya Brāhmaṇa</td>
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<tr>
<td>ABOI</td>
<td>Annals of the Bhandarkar Oriental Research Institute</td>
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<td>AHNE</td>
<td>The Ancient History of the Near-East</td>
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<td>Al</td>
<td>Ancient India</td>
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<td>Ap DS</td>
<td>Āpastamba Dharma Sūtra</td>
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<tr>
<td>Aṣṭ</td>
<td>Aṣṭādhyāyī</td>
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<td>ASI</td>
<td>Archaeological Survey of India</td>
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<td>AV</td>
<td>Atharva Veda</td>
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<td>Baudh. DS</td>
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<tr>
<td>BCA</td>
<td>Bronze and Copper Age</td>
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<td>BIC</td>
<td>Birth of Indian Civilisation</td>
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<td>CBAl</td>
<td>The Copper Bronze Age in India</td>
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<td>CHMM</td>
<td>A Comparative Hindu Materia Medica</td>
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<td>CHI</td>
<td>Cultural History of India</td>
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<td>CMN</td>
<td>Culture of Maheswara and Navadatoli</td>
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(vii)

Ch.U. Chāndogya Upaniṣad
DVR Dictionary of Vedic Rituals
EIC The Early Indus Civilisation
GB Gopatha Brāhmaṇa
GDS Gautama Dharma Sūtra
GGS Govila Gṛhya Sūtra
HGS Hiranayakesi Gṛhya Sūtra
HSL History of Sanskrit Literature
HŚŚ Hiranayakesi Śrauta Sūtra
IAR Indian Archaeology—A Review New Delhi,
I.Ant. Indian Antiquary
ICAR Indian Council of Agricultural Research
IHQ Indian Historical Quarterly
IMM Indian Materia Medica
JAS Journal of the Asiatic Society
JB Jaiminīya Brāhmaṇa
JGS Jaiminīya Gṛhya Sūtra
JRAS Journal of the Royal Asiatic Society
JUB Jaiminīya Upaniṣad Brāhmaṇa
JVS Journal of the Vedic Studies
KB Kauśitaki Brāhmaṇa
KGS Khādira Gṛhya Sūtra
KS Kāthaka Saṁhitā
KŚŚ Kātyāyana Śrauta Sūtra
KU Kaṭha Upaniṣad
KU Kauśitaki Upaniṣad
MCSFAI Material Culture & Social Formations in Ancient India
MIC Mohenjodaro and Indus Civilization
MS Maitrayaṇi Saṁhitā
MU Māṇḍūkya Upaniṣad
NBP North Black Polished (Ware)
OCP Ochre Coloured Pottery
OT Old Testament
PAAP Pre-historic Antiquities of the Āryan People
PAIOC Proceedings of All India Oriental Conference
Paipp Paippālāda Saṁhitā (AV)
PB Pañcabārīśa Brāhmaṇa
Page
Period
Painted Grey Ware
Pāraskara Grhyā Sūtra
Proceedings of Indian History Congress
Pre-history and Proto-history in India and Pakistan
Proceedings
A Practical Sanskrit Dictionary
Praśna Upaniṣad
Rg. Veda
Śāṅkhāyana Āraṇyaka
Ṣaḍvīṁśa Brāhmaṇa
Ṣatapatha Brāhmaṇa
Sacred Books of the East
Śāṅkhāyana Grhyā Sūtra
Śaṅkhāyana Śrauta Sūtra
Sama Veda
Taittirīya Āraṇyaka
Taittirīya Brāhmaṇa
Tāṇḍya-Mahā Brāhmaṇa
Translation
Taittirīya Samhitā
Vedic Concordance
Vaśiṣṭha Dharma Sūtra
Vaikhāmasa Śrauta Sūtra
Vedic Plants, G.P. Majumdar
Vishweshwarananda Indological Journal
Volume
Vājasaneyī Samhitā
Wonder That was India, A.L. Basham
Yajur Veda
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Anusvara रं Visarga ह
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In the early past, to be very particular pre-historic days man the hunter was leading the life of a parasite. They did not have a settled life. But the Vedic Indians were a civilised people who settled down to a pastoral life and evolved working knowledge of the things that formed their environment, and plants formed one such environment, in order to utilise them to the best of their advantage. They lived in villages, towns and cities in fixed dwellings and houses which were furnished with simple furniture. Their food and drink ingredients consisted mainly of cereals, pulses, fruits, Soma and other plants and plant products which they cultivated in the fields and gardens. The Vedas bring the Vedic man and woman before us perfectly well-dressed, caring for dress and creating an art for dress-making and washing etc. Boats and chariots were their main conveyances for water and land transport and their trade and commerce flourished with plant products as the chief merchandise. They developed agriculture and enjoyed their leisure in playing dice and cultivating music, both vocal and instrumental.

All these things required the knowledge of plant and plant products. Plants played an important role in the economic life of the Vedic people. It would not be an exaggeration to point out that the plant and plant products formed the chief basis of
their economy. They not only grew in the wild regions including jungles, rather they were commonly grown in the villages also. The daily needs of the ancient people in the Vedic age and downwards were fulfilled by the plants and plant products. When mankind arose in the morning he needed the tooth stick, similarly plants served as the part of their food. The plant and their various parts formed ingredients of drugs which cured deadly diseases. It would therefore, appear that the plants were tremendously utilitarian. It has, therefore, been rightly asserted that the utilitarian side gave the first impetus to the scientific study of Botany.

The term Vṣākṣa and Vanaspatya means the fruits of trees. The fruit yielding trees were considered superior to those trees which did not yield fruits. For the possession of fruit yielding trees, a rite has been prescribed to be performed which requires the sacrificer to eat the fruits of the desired tree and to offer the wood of such tree to Agni. Fruits and honey were obtained from plants which formed items of dietary. On the day following the sacrifice, the sacrificer was required to observe fast, but Yājñavalkya prescribes the forest products to be eaten by the sacrificer, be it plants or fruits.

Not only this, the plants were also useful for building houses. Most of the houses in the rural areas were built of wood and straw. Excavations of ancient sites have revealed the use of these materials for building mud houses. At Atranjikhera (Pd. III) representing PGW culture, post-holes over thick mud floor have been discovered which prove that thatched roofing on bamboo or wooden posts was in vogue. Some houses were completely made of wood and were comparatively durable. Wood, bamboo and straw were easily available in villages which

1. ŚB; 1.1.1.10.
2. Ibid., 1.11.7.2; AB, 8.1.6.1.
3. TS; 5.1.1. Vide Roy, B.P., LVE; p. 169.
4. Ibid; 2.5.5.6.
5. AV; 1.3.1.4.
Introduction

made it easy to build houses. For re-enforcement of mud walls husks and straws of paddy were mixed with mud as it is evident from the excavations at Hastināpura. The *Atharva Veda*7 informs that usually the houses were made of wood and reeds. Those were constructed with 2, 4, 6, 8 and 10 side-posts depending upon the size of the house. The roof of every house was supported by beams.

Chariots played a prominent role in the life of the Vedic Aryans. It was used both for the purpose of fighting battles and conveyance. The Chariots were made of hard wood. Different types of vehicles such as carts etc. were made of wood and bamboo and sometimes these were covered with mats. It has been rightly mentioned that there are two kinds of objects coming from trees, namely the wheels of chariots and wagons.

From the medical point of view, the ancient Indian plants occupied a place of pre-eminence because the full IXth maṇḍala of the *Rg Veda*, the earliest literature of the Hindus is dedicated to the praise of the medicinal value of plants. It has been rightly called the *auṣadhi sūkta*. It makes reference to 99 medicinal plants. Then the *Atharva Veda* is another important treatise, which deals with broadly speaking 288 plants. Almost all of them have medicinal ingredients, which cure deadly diseases. The *Brāhmaṇas* of the *Atharva Veda* containing sacrificial explanation of the hymns are of much importance for analysing the functions of plants. Of all the Vedas the *Atharva Veda* is the most important for studying the ancient plants. The *Yajur Veda* has a list of 82 plants. The *Brāhmaṇas* deal with 129 plants while the *Kalpa Sutras* deal with 519 plants. Such plants, which have not been dealt with in detail in the earlier texts like the *Rg. Veda*, the *Atharva Veda* and the *Brāhmaṇas* have been vividly described in the Sanskrit texts of later ages e.g. the *Kalpa Sutras*.

The title of the present thesis “Economy of Plants in the Vedas” appears to be perfectly justified as the plants formed the

7. *AV*; 9.3.1-29.
basis of ancient Indian economy indeed. Not only did they fulfil daily needs of mankind, they provided him with fruits which formed part of their diet, they provided him wood for timbering, thatching the roof, furniture, building the houses, manufacturing the agricultural implements and providing ingredients in ample quantity for manufacture of drug which will be examined in detail in the pages to follow. In fact, the economy of ancient India depended on plants which can be guaged from the fact that drugs were manufactured from them. It was really plant economy. Unfortunately it has been a neglected field of study so far. Hence, the present work is an humble attempt towards fulfilling a gap in our knowledge about plants.

Although the title of the present work is "Economy of Plants in the Vedas" efforts have been made to hunt all literatures of ancient India where there are references to plants. Therefore, the post-Vedic literatures also have been subjected to study so that the plants not covered by the Vedas but very important may not be lost sight of. For example, although Tulasi is a very important plant not only from the sectarian point of view but also from medicinal point of view, it has not been referred to anywhere in the Vedic literatures. First of all it occurs in the Śāṅkhālikhīta Dharma Sutra, still it has been included in the work.

The first person to realize the importance of plants was G.P. Majumdar, who enumerated a list of ancient Indian plants in the Vedas in his "Vedic Plants" B.C. Law Volume 1, Calcutta. It may be described as the first pioneering effort on plants. Secondly he did a great service to the ancient Indian plants by presenting his illuminating paper entitled "Genesis and Development of Plant Sciences in Ancient India", before 13th All India Oriental Conference, Technical Sciences Section.

Another important work in the field is one by Prof. P.V. Sharma Dravyaguna Viṣṇṭana Pt-IV, Varanasi. But it is solely devoted to the medicinal plants.

Still another in the field is one by Dr. B.P. Roy entitled "The Later Vedic Economy" in which he has devoted one
chapter on the plant economy. But the work of Dr. B.P. Roy is not complete. He has enumerated medicinal herbs, *Vanaspati*, *ṭṛṇa* and *latā* in one chapter. Naturally one will fail to do justice to the subject it rightly deserves in one chapter. Moreover, Dr. B.P. Roy has not enumerated more than 125 plants in his work. There is definitely much scope for further analysing the Vedic literatures and other important post-Vedic literatures. Secondly Dr. B.P. Roy has not given in detail the use of plants they are put to in the present ages. No account of the plant would be complete unless its present use is enumerated if it is not extinct.

The *Vedas*, the *Brāhmaṇs*, the *Upaniṣads*, the *Āraṇyakas* and the important Sanskrit works have been studied and informations gathered from the literary sources, whereever possible, have been corroborated with the help of the archaeological sources.

The present work entitled “Economy of Plants in the Vedas” has been divided into the following chapters with an introduction in the beginning and a conclusion at the end.

1. Medicinal Herbs
2. *Vanaspati* (Trees in general)
3. *Latā* (Creeper)
4. *Ṭṛṇa* (Grasses)
5. Miscellaneous Plants

The introduction deals with the importance of plants in the ancient Indian economy, their broad classification, justification of the title and salient feature.

The first chapter is in fact a contribution to the field of knowledge which deals with such plants as are of medicinal value, e.g. *Apāmārga*, *Ksetriyanāśī*, *Jīvanti*, *Soma*, *Prṣṇipani*, *Rajani*, *Saṅkhapuspī* and *Haritaka* etc. The medicinal use of these plants and the name of the diseases which are cured have been described in detail.
The Second Chapter deals with Vanaspati, the trees in general. The Vanaspati or Vṛkṣa which are used ordinarily to denote trees, means the lord of forests. The trees were not only of use in timbering the houses, rather they also were used for sacrificial and medicinal purpose. The trees were employed for chariot making, dice making etc. Undoubtedly, the Vanaspati played an important role in the economic life of ancient India. The important among the trees are Araṇu, Aśvattha, Āmalaka, Khadira, Kṛmuka, Palāśa, Udumbara, Śalmali, Vīlva and Vībhītaka etc.

The Third Chapter deals with latā (creepers or climbing plants) which include Amūlā, Uravāruka, Kumuda Puṇḍarika and Madāvatī etc. Now the Madāvatī or Drākṣā (grape) was not only very sweet tasted fruit, but also used for preparing wine, which was health giving. The Vedic Indians had full knowledge of such useful creepers on which their economy really depended.

The Fourth Chapter deals with tṝna (the grasses). Apparently it may appear to be not so much significant but the authors of the Vedas had adumbrated over their utility in the early historic society. Notable among the tṝna are Arjuna, Ikṣu, Kuśa, Darbha, Dūrvā, Muñja, Naḍa, śara and Vāṁśa etc. Ikṣu (sugarcane) on being crushed yielded juice which was very sweet in taste. It was known to the authors of the Atharva Veda as it has been referred to there. Similarly the Kuśa and Dūrvā grass had its sacrificial importance. At the last there is a useful bibliography. The present work on the plant economy of the Vedic India is a need of the hour.
The importance of medicinal herbs can be realised from the fact that an independent and separate sūkta has been dedicated to its praise. And this has been rightly called the _ausadhi-sūkta_. It has been stated that the herbs sprang up three ages earlier than the Gods.\(^1\) It lends weight to the belief that use of herbs for curing diseases was known even in the hoary antiquity. The word _ausadhi_ has been used several times in the _Rg-Veda\(^2\)_ and the _Atharva Veda_. _Ausadhi_ is employed in opposition to _virudh_ to denote plants possessing healing power or some other quality useful to men, while _virudh_ is rather a generic term for minor vegetable growth.\(^3\) When in ancient times the medicine system had not developed so much, the authors of the _Rg-Veda_ paid their best tributes to these tremendously useful plants by making frequent references. As mothers have a prominent role in the nourishing of their child, similarly the herbs also act as the life-saving drugs. The _ausadhis_ with excellent powers and hundred of forms may remove various types of ailments. In view of above they have been rightly compared, to mother by

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1. _RV_; 10.97.1; "Herbs that sprang up in times of old, three ages earlier than the Gods."
2. _RV_; 1.166.5; 4.57.3; 6.39.5; 1.90.6; 8.27.2; 10.169.1; 3.34.10; etc. _AV_; 4.15.2; 11.6.17; 8.2.22.
the Vedic seers.\(^4\) They will lead us to success like mares who are the winners of races.\(^5\) Emphasizing upon the significance of herbs, it has been stated that one who has a store of herbs is like a mighty king amid a crowd of men and a physician, is a fiend-slayer and chaser of deseases.\(^6\)

Herbs are the embodiment of nourishment and strength, which regenerate the human mind and body.\(^7\) The healing power of herbs have been compared with coming out of cattle from the stall.\(^8\) Herbs are described as relievers and restorers. Consequently they keep far away whatever bring desease and save the vital breath. They may grow at hundred places. Yāska has defined them as one possessing the capacity to generate energy in the body and one which removes deseases from the body.\(^9\)

The herbs have been divided into fruitful and fruitless, those that blossom and blossomless. They release us from our pain and grief.\(^10\) They liberate human being from Yama’s fetters and from sin and offence against the gods. To conclude “unharmed is the man who digs up the herb and unharmed is the man for whom the herb is dug up,”\(^11\) The plants have been made to say that they save from death the man whose cure a Brāhmaṇa under takes.\(^12\) The foregoing passages would leave no scope for doubt that the Vedic seers had fully realised the importance of herbs for curing several deseases.

In the Brāhmaṇas the auṣadhi has been called ṛhuti, barhi and nakha and vanaspati has been called Idhma.\(^13\) Aṣadhis

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8. *Ibid*; 10.97.8. “The healing virtues of plants stem forth like cattle from the stall-plants that shall win me store of wealth and save the vital breath, O Man”.
9. *Nirukta*; 9.27. ओषधम; ओषधवत्तीति वा। ओषधेना ध्यन्तीति वा। दोषधवत्तीति वा।
have been called Paṣupati. They have also been called Devapati. The Kalpasutra also refer to the auṣadhis in detail. Pāṇini also has used the word auṣadhi at several places. It may be concluded without fear of contradiction that the auṣadhis were life-giving, bestower of good health and hence their importance in the economic life of the people of ancient India.

Ajaśrnga was a medicinal plant first mentioned in the Atharva Veda. Dārila called it meśasrngi, goat’s horn. Śāyaṇa called it Vishāne. This plant is botanically known as odina pinnata and gynandropsis pentaphylla DC. It was termed as a demon destroyer. So it seems that its wood was used as medicine to cure effects of evil spirits. It cures cough, thirst, dysentery, consumption and vomiting. Its pungent smell, when burnt drives away mosquitoes. It appears that its leaves were similar to the horns of goat. Its synonym is arāṭaki. Weber suggests that it is the prosopis speicigera or mimosa suma. But Majumdar has described its two varieties, odina wodi ar and gymnema sylvestre. It is found in the hotter parts of India from extreme N.W. along the foot of the Himalaya, ascending to 4000 ft.

Aparājitā (clitoria ternatea) was a herbal plant having blue flowers. Its literal meaning is ‘unconquered’. It is used for prosperity and long life. The Atharva Veda states that it has

13. AB; 5.28. ŠB; 1.8.2 11; 7.4.2. 11-12. ओषधयो बधनस्थय इहा।
14. ŠB; 6.1.3.12.
15. Ibid; 6 5.4.4. ओषधयो व दैवानां पल्ल्यः।
16. Kauś. Sūtra; 83.11; ŠGS; 4.5.2; KGS; 3.4 3; BDS; 1.10.9; Ap. GS; 4.1.12.
17. Pāṇini, Ast; 4.3.135; 5.4.37; 6.3.132; 8.4.6.
21. Ibid.
24. Ibid.
25. AV; (Paipp) 20.20.6; AV; 2.27.3; Ved. Pl. 647., Kauś. Sūtra, 139.7
Sharma, P.V., Dravyaguna Vijnāna; Pt. IV, p. 7
magical power and a person wishing to be victorious in debate should chew its roots and bind an amulet of it and also wear a garland of its seven leaves. It is found in India and Cochin-China. In India its root is used as a diuretic and emulcent, and the seeds are given to the children in colic.

*Apaskambha* was a kind of herb. Its leaves when rubbed on the part of body filled with poison, serve as an antidote, and nullify the effect of the poison.

*Apāmārga* (*achyranthes aspera*) plant has been frequently mentioned in the *Athrava Veda* and later *Samhitās*. It was significant and useful in the economic life of the people in ancient days. The characteristics and medicinal ingredients of *apāmārga* are mentioned in the *Athrava Veda.* It is identified with vernacular *ciracirā*. Its branches tend only towards one direction and the fruits towards the other. It was considered as a symbol of vigilant circumspection. It was also employed toward off all kinds of evil and witchcrafts. In *rājasuyu* its fruits were used in the *apāmārga* offering in order to drive out the demons.

The *apāmārga* plant has occurred in the *Satapatha Brahmana* along with *palāśa* and *vikaṅkata*. It is known as cleansing plant or wiping plant. It is also called the burr plant (Birdwood), a common hairy weed found all over India and much used for incantations and sacrificial purposes. The taste

29. There is no reference to *Apāmārga* in the *Rg. Veda. AV.*; 4.17.6-8; 4.18.7; 4.19.4; 7.65.1-3; Eng. Tr. by Griffith, R.T.H., pp-156-57; Chand, D., *Op. cit.*, p 123, 311; *VS*; 35.2. *SB*; 5.2. 4.14.20; 13.8.4.44; *TB*; 1.7.1.8; *Āp. ŚŚ*; 18.9.5.20.
32. *Ibid.*, 4.17.6.; *TB*; 1.7.1.8.; *SB*; 5.2.4.14.
33. *ŚB*; 5.2.4.15; *Āp. ŚŚ*; 18.9.5.20.
34. *ŚB*; 5.2.4.15.
of apāmārga fruits is bitter and it is used for purifying blood and curing wounds. It was also used for curing different kinds of ailments specially against kṣetriya disease. This plant is described in the Atharva Veda as reversionary (punah-sara). It is called Parākpuspā, Pratyakpuspā and Pratyakparnt from the reverted direction of the growth of its leaves, flowers and fruits. It cures cough, piles, itch, stomachache and other ills. It is also used as an antidote to the venom of scorpion.

Arka (calotropis procera or c. gigantea) is a kind of shrub found in the drier parts of India, chiefly in the Sub-Himalayan tract from the Indus to Jhelum; Oudh, central India and the Deccan. Its flowers and fruits were used in certain sacrifices. It was considered as growing and spreading from the resting place of Rudra. So its flowers and fruits are offered to him. Its root is used by the Pathans for tooth brush, having the merit of curing toothache. The flowers are used in the cases of cholera. Its white juice is used for curing eye diseases. In the Satapatha Brāhmaṇa, its different parts have been compared with the human body. Amulets made of its wood were put on for ensuring health. Arka tree is also used as a camel fodder.

Arundhatti, (sida cordifolia or sida shombibolia) is the name of a plant celebrated in several passages of the Atharva Veda as possessing healing properties. It was used not only to cure wound and fractures rather it was also used for increasing the milk-flow of the cows. It was a climbing plant which attached

39. Chakrabarty, C., CHMM; p. 32.
40. AV; 6.72.1; TS; 5.4.3.3; 5.2.5.5.; ŠB; 10.3.4.3.; Watt, G., Op. Cit., Vol. II, p. 49.
41. ŠB; 9.1.1.4; 9.1.1.42.
43. ŠB; 10.3.4.3.
44. Sharma, P.V., Dravyaguna Vijñāna, Pt. IV, p. 16.
45. AV; 53.7; 4.12.1; 5.5.9; 6.59.1-2; 8.7.6.
46. Ibid; 4.12.1; 6.59.1-2; 5.5.5-9; 8.7.6.
itself to trees like the plakṣā, parna, aśvattha and nyagrodha. It was of golden colour (hiranya-varna), and had a hairy-stem (lomaśavakṣana). One of the hymns of the Atharva Veda refers as follows:—“O gold coloured, lovely, sun-coloured most handsome (plant) mayest thou come to the fracture.” It was also called silaci and the lākṣā appears to have been product of it. Sāyaṇa defines arundhati as Sahadevi, a common name for plants, but the interpretation is not to be trusted because he reads Sahadevī for Saha devī. Majumdar mentions Arundhati as an epiteth of Sahadevī spieces of side cordifolia or S. rhombifolia. He also takes it as silaci, a climber having stem of Golden colour, and lāc appears to have been a product of it.

Aśmagandha is the name of a medicinal herb. It is identified with aśwagandhā, meaning ‘horse smell’. The Latin name of this tree is physalis flexuosa. It has already been mentioned along with adhyāṇḍā. Aśwagandhā is botanically known as withania somnifera Dunal. This shrub is common in Bombay and western India, and occasionally found in Bengal. It contains medicinal properties and is still used for preparing medicines. Root and bitter leaves are used as hypnotic in alcoholism, an emhasematous and dyspnoea. It is used in consumption, general and seminal debility, nervous exhaustion, loss of memory, leucorrhoea, spermatorrhoea, sterility, lumbago, scrofulous and other glandular swellings and externally skin.

47. Ibid: 5.3.7.
48. VI; Vol. I p. 35.
52. AV. 5.5.5-7.
diseases, obstinate ulcers, carbuncles and rheumatic swellings.  

Aśvāvatī is one of the four principal medicinal plants mentioned in the Ṛg-Veda. It has not been identified.

Āṇjana was a plant having scented wood (aṇjanagandhisurabhi). The Atharva Veda informs that it grew wild on the Trikakuda mountain and on the banks of the Yamunā. The Śatapatha Brahmana also confirms that it grew in mountainous regions. It was used for making ointment for protection from all kinds of eye diseases. The flowers are used in the worship of Mahādeva and Hanumāna. The leaves and twigs are also ordered to be used as substitute for tooth brushes. They are also employed as Samiḍhā for the feeding of sacred fire.

Ādāra was a kind of plant which was prescribed as a substitute for soma plant in Brāhmaṇa literature. The Śatapatha Brāhmaṇa informs that its wood, when offered into fire increased its flames. So it seems that it was inflammable.

Sāyana also mentioned ādāra as inflammable but he had no knowledge of its exact form and nature because he has identified it with grass; sometimes with a creeper or milk yielding plant. It seems that it was a plant of hard wood, of which churnstaff was made. The word ādāra is also mentioned in the Ṛg-Veda. G.P. Majumdar identified it with Ādraka (zingiber officinale).

59. Ibid; 10.146.6; 10.18.7.
60. AV; 4.9.1-10, Eng. Tr. by Bloomfield, M.: SBE; XLII, p. 61.
61. ŚB; 3.1.3.10-15.
63. ŚB; 3.1.3.10.
64. Ibid; 4.5.10.4; PB; 8.4.1: VS; 37.6. KŚŚ; 25.12.19;
65. Ibid; 14.4.2.12; Eng. Tr. by Enggling, J., SBE, XLIV, p. 422.
66. TS; 2.5.3.5.
67. Sharma, P.V., Dravyaṅga Viṣṇu, Pt. IV, p. 27; Ved. Pl. p. 646.
Abaya or Abayu was a medicinal plant first mentioned in the Atharva Veda. This plant is botanically known as brassica juncea. Its name in the different dialects of India is rai, sarson, badshahi rai (Hindi), rai sarisha (Bengali) rajika (Sanskrit). This is in fact the name of mustard which takes the place of B. nigra in all warm countries. It is cultivated throughout India. This plant is sown in dry land in October and November and cut in February and March. It is a plant of tall variety 3-4 feet in height, with bright green foliage, stems much branched, smooth, erect often tinged purplish red, specially at the joints. Abaya plant is much useful in the life of Indian people. The leaves are used as a vegetable. In Kumaon the plant is cultivated chiefly for its leaves, which are eaten and also used as fodder. The seeds are small round dark, distinctly reticulated. Ground into flour they are used largely as an adulterant with the true mustard. The seeds, whole or broken, are often used to flavour curries. Its oil is used almost entirely as an article of food in the plains of India. The Atharva Veda elaborates its medicinal value. The leaf of the mustard plant mixed with the oil is given in opthalmia. The stem of the mustard plant smeared with mustard oil is also fastened upon the patient as an amulet. Externally it is used in internal congestions, in spasmodic, neuralgic, and rheumatic affections and other cases where it is desirable. In negative practice, for external use, it is often combined with moringa bark or garlic, which greatly increases its activity. Internally it is taken in moderate quantities. It acts as digestive.

Asuri was a herbal plant. It has been mentioned in the Atharva Veda. It appears that it was used as a medicine to

68. VI, Vol. 1, p. 58.
71. Ibid.
72. Ibid. p. 529.
73. AV; Eng. tr. by Bloomfield, M.; SBE, XLII, p. 465.
75. Ibid., p. 530.
76. AV; 1.24.1-4; Sans. text. with Eng. tr. by Chand, D., p. 19.
cure leprosy. It kills germs and cures wounds.\textsuperscript{77} It has already removed leprosy and made the skin of even colour. \textit{Āṣūrt} itself is the name of a magic plant,\textsuperscript{78} but it is difficult to identify. It has not been mentioned elsewhere except the \textit{Atharva Veda}.

\textit{Ucchuṣma} (\textit{mucuna pruriens})\textsuperscript{79}: According to Dārila and Keśava it means \textit{Kapikacchu}. In the \textit{Ṛg-Veda} (10.97.8) \textit{Ucchuṣma} is mentioned as \textit{oṣadhinām}. Sāyaṇa mentions the plant \textit{Kapitthkamūlam}, the roots of \textit{feronia elephanteem} to promote virility. Sharma has identified it with \textit{Kapi kacchū}.\textsuperscript{80}

\textit{Uttānapatra}\textsuperscript{81} (\textit{cissampelos pariera Linn}) has been interpreted by some commentatros as a medicine with expanded leaves. It is also known as the synonym of \textit{Pātā}.\textsuperscript{82}

\textit{Udojasa}\textsuperscript{83} seems to be some kind of herbal plant. It has not been identified.

\textit{Uśānā}: The earliest allusion to \textit{uśānā} plant is found in the \textit{Śatapatha Brahmana}.\textsuperscript{84} It was a herbal plant akin to \textit{Soma} which grew in mountainous regions. \textit{Soma} was prepared from it. Majumdar takes \textit{pippali} as its synonym. But the synonyms of \textit{pippali} is \textit{uśānā}, not \textit{uśānā}. In fact it shows that the creeper was famous as a substitute of \textit{Soma}.

\textit{Ūrjayanti}\textsuperscript{85} is one of the four medicinal plants mentioned in the \textit{Ṛg-Veda}. It is some kind of herb which increases energy and activity and preserves sound health. Yet it has not been identified.

\textsuperscript{78} Ibid; Eng. tr. by Bloomfield, M., SBE; Vol. XLII, p. 268.
\textsuperscript{79} Ibid; 4.4.4; Eng. tr. by Bloomfield, M.; SBE, XLII, p. 369.
\textsuperscript{80} Sharma, P.V.; \textit{Dravyyaṅga Vijñāna}, Pt. IV, p. 32.
\textsuperscript{81} AV; 3.18.2; Chand, D., \textit{Op. Cit.}, p. 83.
\textsuperscript{82} Ibid., 10.145.2; Sharma, P.V.; \textit{Dravyyaṅga Vijñāna}, Pt. IV, p. 32.
\textsuperscript{84} ŚB.; 3.4.3.13; 4.2.5.15; VI.; Vol, 1, p. 103, Sharma, P.V., \textit{Dravyaguna Vijñāna}, Pt. IV, p. 38.
Kākamāci is a herb common throughout India. Its botanical name is *solanum nigrum* Linn. Sāyaṇa takes from *nitatni* word medicine like Kākamāci. According to *Kauśika Sūtra* Kākamāci is used with *bhṛṇgarāja* to prevent the falling out of hairs. It is used in heart disease, fever, coughs, enlarged liver and spleen and externally rheumatic and gouty joints, skin diseases and painful swollen testicles. It also removes poison.

*Kirātātikta (sweritia chirata Buch. Ham)* has been referred to as *Kalrātikā* or *Kumārikā*. It has been said that a little kirāta girl is digging the remedy on the high ridge of the hills with lusturous or golden shovels. It means that it grew wild on the mountains like the Himalayas. Devi Chand has rightly given the vernacular as *ciraltā*. It is also known as *Cirāitā*. Because a little kirata girl is digging the remedy, it is also called *kirātikā* or *kumārikā*. Extremely bitter in taste, it is even now taken in to set the stomach disorders and kill the worms. The entire plant stems and root either fresh or dried is used as a medicine. It is also used in the form of tea in atomic dyspepsia and functional inactivity of the liver.

*Kuṣṭha* (costus speciosus or *Cabacicus*) is specially mentioned in the *Aṭharva Veda*. It grew along with the Soma on the high peaks of the Himalayas. Like *Soma*, it is said to have grown in the third heaven under the famous *aśvattha* trees where the gods were accustomed to assemble and thence it was brought in a golden ship. Its synonym is *naddyamāra* or *nadyārīṣa*. It was used for curing several diseases and so it was called *viśva-bheṣaja*.

92. *Ibid*; 19.39.9; *SGS*; 1.11.2.
it was thought that it possessed divine powers. The credit of discovering its medicinal ingredients has been given to king Ikṣvāku. It was very useful in curing leprosy. Roth thought that the takman referred to leprosy because the name of plant Kuṣṭha the specific against takman is in the later medical writings also a designation of leprosy. Its aromatic qualities were apparently known as it is classed with salve (aṅjana) and Nalada (nard).

*Kṣetriyanāśini* was a herbal plant which was perhaps used to cure some hereditary consumption. Griffith thinks that the hereditary disease was from the mother’s body which was considered to be its source. In the Śaunkiya Saṁhitā it was called the remover of *kṣetriya* disease. Besides this it was useful in dysentery, headache and hair growing.

Guggulu was a tree which yielded solidified scented juice. In the Vedic literature it is said to be the resting place of Agni. It is highly inflammable. This plant is botanically known as Commiphora mukul or Bulsamodendron mukul. Its synonym is gulgulu or bdellium. Guggulu was a homadravya, which emitted divine scent (devasurabhi). Atharva Veda mentions that smoke created by guggulu had the power to kill the germs of tuberculosis. Even now guggulu is used as a homadravya.

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96. Ibid; Eng. tr. by Bloomfield, M.; SBE, XLII, p. 441.
97. Ibid; 6.102.3.
98. AV; 2.8.1-5.
99. Roy, B P., LVE; p. 177.
100. AV; 4.37.3; 19.38.1; Eng. tr. by Bloomfield, M., SBE; Vol. XLII, p. 675; Eng. tr. by Whitney, W.D., p. 957-58; Sans. text with Eng. tr. by Chand, D., p. 61; SB; 3.5.2.16; PB 24.13; AB; 1.28; KS; 25.6; TS; 6.2.8.6.; KSS; 5.4.25.
102. AB; 1.28.
103. Tāndya Mahābrāhmaṇa. 24.13.5.
104. AV; 19.38.1.
It is also used in the diseases of cow.\textsuperscript{105} It is commonly found in the rocky hills of Sind, Rajputana and Baluchistan.\textsuperscript{106}

Cipudru was a medicinal herb.\textsuperscript{107} The Synonym of the plant cipudru is Śipudru.\textsuperscript{108} It has been referred to in the hymns of the Atharva Veda, the Hiraṇyakesī Śrauta Sūtra and the Saṅkhuyana Gṛhyasūtra. In the Atharva Veda it is mentioned as a panacea\textsuperscript{109} (to cure all diseases). In the sequel (complete literary work) Kauśika prescribes its employment twice (26, 34). It is recited while the patient is anointed with the powder obtained by pulverizing a chip of palāśa wood of the width of four fingers\textsuperscript{110} (26, 39), it is employed while dregs of ghee are being poured upon the head of the one afflicted with dropsy. Keśava and Sāyana take them more broadly as universal remedies. Its wood seems as though the chip of palāśa wood (butea frondosa) is intended to reflect the cipudru.

Jaṅgida\textsuperscript{111} was a healing plant. It was used as an amulet against the disease, such as takman, balāśa, āśarika, viśarıka, pratiyāmaya, fevers and rheumatic pains, viskandha and saṁskandha, jambha and so on.\textsuperscript{112} It was so useful that it was considered as the most excellent herb. It is known as viśabhaṣaṇa, all healing.\textsuperscript{113} The Atharva Veda praises it in these words “The ancient herbs surpass thee not, nor any herb of recent days.”\textsuperscript{114} As the protector of the health of a person it has been compared with a guard-protecting wealth in the treasury.\textsuperscript{115} It is said to be produced from the juices of ploughing, so it seems to have been a cultivated plant.\textsuperscript{116} Its wild variety was also found.

105. Sāmbidhān Brāhmaṇa.
107. AV; 6.127.2; HŚŚ 21.3.5; SGS; 1.23.1.
108. AV; 6.127.2.
109. Ibid.
110. Sāyana’s note on AV.
111. AV; 2.4.1-6; 19.34.10; 19.35.1-5; Eng. tr. by Bloomfield, M., SBE; Vol. XLII, p. 443; Eng. tr. by Whitney, W.D., p. 42.
112. Ibid., 19.34.1-10; 2.4.2.
113. Ibid., 19.34.5.
114. Ibid., 19.34.7.
115. Ibid., 19.35.2.
116. Ibid, 2.4.4.
Sāyaṇa says that it grew abundantly specially in the area of Varanasi. Dārila describes it as a white tree (arjuna) growing in the Dekkan.\textsuperscript{117} Caland takes it to be the \textit{terminalia arjuna}.

\textit{Jīvanti}\textsuperscript{118} is a plant botanically known as \textit{leptademia reticulata}.\textsuperscript{119} It is often found on Jambul trees in Sikkim, Khassia Hills, Konkan, Nilgiris and common Hills of south India.\textsuperscript{120} It possesses power to regenerate life in a sick person. It means life prolonging. The \textit{Atharva Veda} mentions that it was used as a medicine for ensuring sound health.\textsuperscript{121} It was a preserver of health, queller of disease and full of power. As a tonic it is given in debility due to seminal discharges.\textsuperscript{122} It is also used in snake-bite.

\textit{Tajadhbaṅga}\textsuperscript{123} (\textit{ricinus communis}) was an easily breakable plant which is identified with \textit{eranḍa} (castor oil plant).\textsuperscript{124} But Whitney takes it to be hemp.\textsuperscript{125} In the \textit{Atharva Veda} it is mentioned as a battle charm, which deals specially with the obstacles that are placed in the way of an advancing enemy. Traps and nets are constructed to capture and destroy them. The \textit{Kauśika Sūtra} (16, 14-15) rubricates the practices of the king.\textsuperscript{126} It is a perennial plant indigenous to Africa and India where it is now extensively cultivated for the castor seeds, castor leaves as seed for the silk worms, and as an ornamental shrub.\textsuperscript{127} The oil extracted from the seeds is a mild and efficient purgative, though it has a tendency to produce subsequent constipation, and has reputation to be anthelmintic. The leaves are applied to excite

\textsuperscript{117} \textit{Ibid.}, 2.4.5; \textit{Kauś.Śūtra.}, 8.15; 42.23.
\textsuperscript{118} \textit{RV}; 5.78.9; \textit{AV}; 3.14.6, Eng. tr. by Bloomfield, M., \textit{SBE}, XLII p. 420. \textit{KS}; 1.3.; 31.2.; \textit{TS}; 3.4.3-5.; \textit{SB}; 11.4.3.2.
\textsuperscript{120} Nadkarni, A.K., \textit{IMM}, Vol. 1, p. 444.
\textsuperscript{121} \textit{AV}. 8.2.6; \textit{Op. Cit.} Chand, D., p. 338.
\textsuperscript{122} Nadkarni, A K., \textit{IMM}, Vol. 1, p. 444.
\textsuperscript{125} \textit{AV}; Eng. tr. by Griffith, R.T.H., p. 502.
\textsuperscript{126} \textit{Ibid.}, Eng. tr. by Bloomfield, M., \textit{SBE}, XLII, p. 505.
the secretion of milk. They are also locally used in skin diseases, abscesses and ophthalmia. A decoction of root is used in flatulent colic for nephritic pains and in asthma.\textsuperscript{128}

\textit{Tarakā} was used for curing different kinds of chronic and hereditary diseases.\textsuperscript{129} \textit{Vaiṣṇava} was also such a medicinal herbs, but it is difficult to identify both of them.

\textit{Talāśa}\textsuperscript{130} (\textit{flacourtia cataphracata} Roxb) was a plant said to be the best among the trees. Amulets made of its wood are used. Whitney suggests it as \textit{tālitā}.\textsuperscript{131} Sharma takes it \textit{abies webbiana} Linn.\textsuperscript{132} It was used for curing several diseases. Dried leaves are useful in asthma, bronchitis and catarrah of the bladder.\textsuperscript{133} It is also used in affections of the chest, phthisical caugh, dysentery, diarrhoea and indigestion caused during dentition. Its fruits is edible\textsuperscript{134} and it is recommended in bilious conditions to relieve the nausea and to check purging. It is also used in liver complaints.

\textit{Tulasī} (\textit{Surasā}) is botanically known as \textit{oeimum sanctum} Linn. This small herb is found throughout India and cultivated near Hindu houses and temples.\textsuperscript{135} The plant so sacred for the \textit{Vaiṣṇavas} has been mentioned only a few times in the late texts.\textsuperscript{136} Although it is such an important herbs it is strange that there is no reference to this plant in the Vedas. Its importance in religion and medical science developed during post-Vedic times. It is useful in several diseases. It also cures chronic fever, haemorrhage, dysentery and dyspepsia. Power of the root rubbed slightly on a scorpion bite will give relief from pain. It also

129. \textit{AV}; 2.8.3-5; Eng. tr. by Bloomfield, M.; \textit{SBE}; XLII, p. 476.
136. \textit{Śaṅkhārikīta Dharma Sūtra}, 129.
induces religious tendency longevity. Its root is febrifuge, and leaves are used in ringworm mixed with lime-juice.

**Taudī** is the name of a medicinal herb. It has soothing effect on poison.

**Tauvilikā** is mentioned in the *Atharva Veda* in a quite uncertain sense. Zimmer and Whitney regard it as a herbal plant. Griffith takes it some kind of beast or herb. Sāyaṇa explains it as a disease caused by female demon, while Bloomfield has left the sense doubtful.

**Trāyamāṇa** (*thalictrum toliolosum*) was a medicinal herb indigenous to tropical India. It is used in atomic dyspepsia.

**Nalada** or *Naladi* is a kind of scented herb. Some western scholars think that *Nalada* is an epithet of herb and *Naladi* is the name of Apsarās, but it is not reliable. In fact it is (*nardostachys*) *jatāmāṇi*. It is found on the Alpine Himalayas Kumaon, Sikkim and Burma. Its flower is used for garland.

**Nārāci** or *Narāci* occurring in the *Atharva Veda* perhaps denoted a poisonous plant.

**Niktā** as a herbal plant has been mentioned in the *Atharva Veda*. It appears that it has to promote the growth of hair. According to Keśava and Sāyaṇa it would be *yellow curcuma*.

143. *AV*, 6.102.3; 4.373. ŚA; 11.4, **AA**; 3.2.4.10; *VI*, Vol. I, p. 437.
146. *AV*; 6.1.21; Eng. tr. by Bloomfield, M., **SBE**, XLII, p. 470.
Nitatnī\textsuperscript{147} was a medicinal herb. Sāyaṇa identified it with kākamāci. It was a plant of deep roots stricking downwards. It was used to prevent the falling out of hair and strengthen its roots.

Nyāstikā\textsuperscript{148} is identified with Šaṅkhapuṣplīkā (andropogon aciculata). It was a herb which helped to increase intelligence. It purified blood and ensured health. Amulets made of its wood were put on the body for obtaining brightness.

Paruṣawāra\textsuperscript{149} is a poisonous plant. It removes the poison of the serpents.

Pāṭā\textsuperscript{150} (clypea hernandisforlia) was a climbing plant later identified with the pāṭhā possessing various medicinal properties. It was known by several other terms such as uttānparṇā, sub-hagā, devajūta and Saḥasvatī. It had magical powers, so the Rg. Veda prescribes its use for removing obstacles,\textsuperscript{161} specially the Sapatiṇībādhanam\textsuperscript{152} (dangers of co-wife). The Atharva Veda prescribes that a person wishing to be victorious should chew its sanctified roots and put on a garland of its seven leaves on his hand.\textsuperscript{163} As Weber\textsuperscript{164} and Ludwig have taken it regarding the hymn (AV 27.1.6) as an incantation against robbers, pronounced in order to protect granaries and store room.

\begin{itemize}
\item \textsuperscript{147} Ibid., 6.136.1, Eng. tr. by Griffith, R.T.H.; Chand, D., Op. Cit. pp 281-82. KS, 40.4. TS, 4.4.5.1, MS, 2.8.13.
\item \textsuperscript{148} AV; 6.139.1. Eng. tr. by Bloomfield, M., SBE, XLII, pp. 539-40. Sharma, P.V., Dravyaguna Vijñāna, Pt. IV, p. 84, Ved. Pl. p. 656.
\item \textsuperscript{149} Ibid., 10.4.2; Chand. D.; Op. Cit., p. 439.
\item \textsuperscript{150} RV; 10.143.1; AV; 2.27.4.; 3.18.1-6; Eng. tr. by Griffith, R.T.H.; p. 66, 108, 109; Eng. tr. by Whitney W.D., p. 68; HŚS, 29.1.4; PGS, 1.21; Āś.ŚŚ, 196, Kauś. Sūtra, 38.18; 76.2.
\item \textsuperscript{151} RV. 10.145. 1-6.
\item \textsuperscript{152} Āp.GS. 3.9.5.8.; Sen, C.B., DVR, p. 163 (Sapatiṇībādhanana, a rite by which the co-wives are subjugated, performed by a wife who strews thrice barely grains around the plant called pāṭā which is set upright next day. She ties its roots to his hand furtively and she embraces her husband.)
\item \textsuperscript{153} AV; 2.27.4. Eng. tr. by Bloomfield, M., SBE, Vol. XLII, pp. 137, 305.
\item \textsuperscript{154} Vide VI, I, p. 515.
\end{itemize}
Pippali\textsuperscript{155} was a medicinal herb mentioned in the Vedic literature. It has been suggested that it should be identified with the berry of Pippala\textsuperscript{156} but it appears to be unconvincing because in later texts it has been mentioned as a plant. Its botanical name is \textit{piper longum Linn.}\textsuperscript{157} The \textit{Athrava Veda} mentions that it was a divine herb having power of regenerating life. It healed even deep wounds. It seems that it was a very curative medicine in case of wounds because it has been mentioned as “healer of sickness\textsuperscript{158} caused by wound”. It heals fever, urinary disease, spleen, etc. This plant is indigenous to North-Eastern and Southern India and Ceylon, and cultivated in Eastern Bengal. Its fruit is used to some extent as a spice. Root is much used as a stimulant remedy and spice. The drug is also used in snake-bite and scorpion-sting.\textsuperscript{159}

\textit{Pila}\textsuperscript{160} is a fragrant plant mentioned in the \textit{Athrava Veda} alongwith guggulu and naladi. According to S\=anya all these five plants guggulu, pil\=a, naladi, auksangandhi and pramanادية were used as a homadravya. It was used for removing the devil demon.

\textit{Punarnava}\textsuperscript{161} (boerhavia diffusa) was a medicinal herb which grew profusely in the rainy season but dried up with summer. It is identified with beshakapore or \textit{gandhpūra} (Hindi). Juice extracted from plant is still used to cure eye-disease. It is consumed as vegetable to increase blood in the body. It is found all over India specially abundant during the rains. It is of two kinds, one with white flowers called ‘swetpūra’ and the other with red flowers called \textit{rakta-pūra}, the former is used in medi-

\textsuperscript{156} AV; Eng. tr. by Bloomfield, M., SBE, Vol. XLII, p 516.
\textsuperscript{157} Nadkarni, A.K., IMM, Vol. 1, p. 965.
\textsuperscript{159} Nadkarni, A K., IMM, Vol. 1, p. 965, Chakraverty, C., CHMM, p. 139.
\textsuperscript{161} AV; 8.7.8; Chand, D., \textit{Op. cit.}, p. 358.
The juice of its leaves is used in hepatic disorders, and the root as a purgative.

Prşniparni (hemionitis cordifolia) was a plant having variegated leaves. It cures disease and grants health and joy. Roth identified it with lakšmaṇa, a herb supposed to ensure the birth of male child or curing barrenness. The scholiast on the Kātyāyana Śrāuta Sūtra thinks that the glycine debilis is meant. According to Suśruta (1.377.7) it is served mixed with milk, as a preventive against miscarriage (garbhaśrāya). Keśava at Kauś. (26.36) prescribes it as a far more general remedy for one overtaken by misfortune against miscarriage. Thus it appears that mainly it was taken as a medicine to prevent abortion. The Atharva Veda says that its use removes Niśrīti, the goddess of death and misfortune, who rejoices at the destruction of an unborn baby. It was put on the body in the form of an amulet for removing the evil effects of demons. It is alleviative of the three faults (vāta, pitta and cūla).

Pramandani has been mentioned along with guggulu and aukṣagandhi. So it appears that it was a plant having scented wood and it was used as a homadravya. Dārila called it indukaḥ.

Brhati or Vyhati (solanum indicum Linn) was a medicinal plant. Its flowers were white and it yielded fruits. It was commonly used as a medicine to be served to the newly born baby. In the Kauśika Sūtra it is employed in Puṣasavana. It has

163. Chakraberty, C., CHMM, p. 141
166. AV; 2.25.1.
169. Ibid., 1.24.1-4; Sharma, P.V., Introduction to Īravyaguṇa, Pt. V, p. 175.
170. Sāṁvidhāna, Brāhmaṇa, 2.3.4.
been broadly mentioned in the *Kalpa Sūtra*. It is common all over India. It is used in several diseases such as asthma, dry and spasmodic cough, chest pains, chronic fevers, colic, flatulence, worms, dysuria, dropsy, enlarged liver and spleen and externally tooth-ache.

*Mādīvatī* has been mentioned in the *Atharva Veda* as an intoxicating or poisonous plant. It has also been said to be mother of sarṣapa. Its synonym is abhrikhātā.

*Rajanī* (rājikā) was a herb to cure leprosy. Griffith thinks that it is the name of the *curcuma longa* which may have been one of the plants used in the treatment of leprosy. The *Atharva Veda* refers to two kinds of this disease, namely disease communicated by contact of a leper and caused by the sufferer’s own sins or irregularities. Rajanī was used to cure both kinds of this disease. When applied it cures wounds and the affected parts look like natural in colour. The *Atharva-Veda* describes it as follows “Night-born art thou, O herb, O dark, black (and) dusking one O colourer (rajanī), do thou colour this leprosy spot and what is pale (Palita)”. This plant is probably so called because of its power of colouring (from rājī to colour).

*Rāmā* has been identified by Sāyaṇa with bhṛṅgarāja, a variety of grass with green leaves and juice stems. Generally it was used for curing leprosy and whiteness of the head and body. It grows more at night.

171. *HŚS*; 28.3.5; *ŚGS*; 1.31.1, *Kaus Sūtra*. 35.4.
Rohini (soymida sebrifenga A Juss) was a very useful herb. It was used in the bone’s diseases. It was also used as a binding material over the broken bone in the body which joined them together. Besides, it was taken as medicine for curing wounds caused by falling or being struck with a small piece of stone.

Vacā or Vaca was a herbal plant mentioned in the Atharva Veda. It has been said that just as an arrow is thrown a far from the string of the bow. Similarly a secret spy in obedience to the orders of his master goes to distant places, similarly the use of Vacā removes the poison. It improves the memory and speech power. Dārila compares it with Vāśā.

Viśā (viśā-taki) was a species of anti-aphrodisiac plant. It was a poisonous plant. It is also mentioned in the Taittirīya Brāhmaṇa. Sāyaṇa takes it Vyāpīṇī. It is the adjective of bāṣṇaparṇī. The Atharva Veda refers to it as a rough plant which was used against an adversary to minimise his manly strength.

Viśāṅka or viśāṇā is the name of a plant mentioned in the Atharva Veda. Bloomfield, however, thinks that the word may merely mean horn. Its adjective is Sahasracakṣu. Its botanical name is gymnema sylvestre. It was used as a remedy against Vāstikāra, a disease caused by wind. However, the available literature are silent on the process of manufacturing drug from the Viśāṅka plant. It is not known what part of

179. AV; 4.12.1-7, Kauś. Sūtra. 28.5.
180. Ibid., 2.31.2; 4.7.4; Chand, D., Op. cit., p. 55, 108.
181. Sharma, P.V., Dravyaguna Vijnāna, Pt. IV, p. 128.
183. TB; 3.7.13.4.
184. Sharma, P.V., Dravyaguna Vijnāna, Pt. IV, p. 133-34.
186. RV; 6.16.20; 9.96.8; AV; 6.44 3; 9.8.20.
the plant leaves, roots, fruits or skin were taken in raw or in the form of a finished drug.

Saṅkhapuṣpi\textsuperscript{190} was a herb which increased intelligence. The synonyms of this plant are Saharsrapaṇi, nyastikā, saṁbanani, subhaṅɡkarṇi and kalyāṇi.\textsuperscript{191} Saṅkhapuṣpi is taken with milk for seven days after drinking water for purification. Its root was used for curing several diseases. The Pāraskara Gṛhya Sūtra has been counted it as sarvausadhi.\textsuperscript{192} The Kauśika Sūtra states that saṅkhapuṣpi and pippali were given to the new born baby with a golden spoon in the Mādhājanana.\textsuperscript{193}

Saṇa\textsuperscript{194} (crotalaria Junceae L) was used as a medicine for curing viśkandha a disease which acts as a hindrance to proper growth of body. Usually amulet made of it was tied on arms. It was of two varieties, namely wild and cultivated. Its fibres were used for making threads for weaving coarse clothes. Some of the Śrauta Sūtras have prescribed it for making girdle (mekhala) to be put on by the sacrificer.\textsuperscript{195} It should be identified with Saṇa or Sanai (Hindi) which is grown during the rainy season. Macdonell and Keith identify it with hemp\textsuperscript{196} (cannabis sativa or crotalaria juncea). Its bitter leaves are used externally and internally in the form of infusion in gastric and boilous fevers. Seeds purify the blood. Seeds in powder mixed with oil are used to make the hair growth.\textsuperscript{197}

Śatavāra (asparagus racemosus) contained properties which were used to cure several diseases.\textsuperscript{198} This plant is found in low

\textsuperscript{190} Ibid, 6.129.1; 7 38.3-5, BDS, 2.1.21; PGS; 1.21; ŚGS; 1.11.2.
\textsuperscript{191} Sharma, P.V., Dravyagupta Vijñāna; Pt. IV, p. 139.
\textsuperscript{192} PGS; 10.106; ŚGS; 1.11.2.
\textsuperscript{193} Kauś Sūtra; 10.16.
\textsuperscript{194} AV: 2.4.5; Eng. tr. by Griffith, R.T.H., p. 46. ŚB; 3.2.11. GDS; 1.17; KŚŚ; 7.3.22; HŚŚ; 11.3.3; PGS; 2.5.16; JGS; 1.12. ŚGS; 1.24.11.13; Viṣṇu Dharma Sūtras, 27.29; 61.5; Ved. Pl. p. 660.
\textsuperscript{195} KŚŚ; 7.3.22.
\textsuperscript{196} VI, Vol. II, p. 350.
\textsuperscript{198} AV; 19.36.1-6.
Jungles all over India specially in northern India. Its roots is used in diarrhoea as well as in cases of chronic colic and dysentery. Root boiled with some bland oil is used in various skin diseases. It is also used to relieve dyspepsia, diarrhoea and to improve appetite. Root is also used in rheumatism. Boiled leaves smeared with ghee are applied to boils, small pox etc. in order to prevent their confluence.\textsuperscript{199} 

\textit{Satavāra} was the most effective medicine to cure ailment caused by dog bites.\textsuperscript{200} Its tops were yellowish.\textsuperscript{201} Griffith thinks that it was not a herbal plant.\textsuperscript{202} His view does not appear to be convincing. It should be identified with Satavara (Hindi). Śāyana thinks that it signified medicinal herb with the properties effective in curing hundred diseases but it is only the literal meaning of the term.

\textit{Śafaka}\textsuperscript{203} or \textit{Śophaka} was a plant which grew in water. The Āpastamba Śrauta Sūtra termed it as bhofyajalaja,\textsuperscript{204} which also proves that it grew in tanks. Suryakanta mentions that it is so called because its leaves being shaped like hoofs (\textit{Śapha}).\textsuperscript{205} Majumdar identifies it with \textit{Śrīgātaka}\textsuperscript{206} (\textit{trapa bispinosa}). It is identified with \textit{singārā} (Hindi). It also has a cooling effect. It is commonly found throughout India in the tanks and lakes.

\textit{Śigru}\textsuperscript{207} (\textit{andropogon muricatus} or \textit{hyperanthera moringa}) was a herbal plant. It is a name of the Sobhānjana tree. Its leaves were used as worm killer. The leaves and seeds are also used in jaundice. Some of the \textit{Dharma Sutras}\textsuperscript{208} prohibited its vegetables in Śrādha. This word has been mentioned in the \textit{Ṛg-Veda}\textsuperscript{209} specially for a janapada.

201. \textit{Ibid.}, 19.36.5.
208. \textit{Viṣṇu Dharma Sūtra}, 61.3; 79.17.
Śīrīśa\textsuperscript{210} (\textit{albizzia lebbeck}) has been frequently mentioned in the \textit{Grhya Sūtras}. Its flowers were used as medicine. It was very useful. Its bark and seeds are astringent and given in bleeding piles, diarrhoea, gonorrhoea in powder. Seeds form part of an āṇjan used for opthalmic diseases. Oil extracted from the seeds is given in leprosy. Leaves are applied to any eye complaints as an ophthamia. Powdered root of the bark is used to strengthen gums when they are spongy and ulcerative.\textsuperscript{211} It yields a kind of gum resin. The leaves are used in fermentations and baths in rheumatic pains. The seeds are poisonous.\textsuperscript{212} Its leaves and seeds are beneficial for a patient of Jaundice and for curing heart diseases.\textsuperscript{213}

Śīlākī\textsuperscript{214} or Śīlācī (\textit{boswellia glabra} or \textit{B. Serrata}) was parasitic plant which grows up on the stems of many trees. The synonyms of this plant are \textit{Arundhati} or lākṣā.\textsuperscript{215} This medicinal plant was formerly applied in cases of severe contusion or fracture. Its habitat is mountainous tract of central India and on the Coromendal coast. It was very useful. The fragrant resin is largely consumed as an incense in houses specially during religious ceremonies.\textsuperscript{216} As astringent in the form of ointment it is useful in chronic ulcers, diseased bones etc. in which it promotes absorption. The gum is used in rheumatic and nervous diseases, scrofulous affections, urinary disorders and in skin diseases.\textsuperscript{217}

Śītikā, as the name suggests was a medicinal herb which contained soothing ingredients.\textsuperscript{218} It was full of fresh juice, so

\begin{itemize}
  \item \textsuperscript{210} AV; 1.24.3-4; Chand, D., \textit{Op. cit.}, p. 17. JGS, 2.6.
  \item \textsuperscript{211} Nadkarni, A.K., \textit{IMM,} Vol. I, p. 15.
  \item \textsuperscript{212} Chakraberty, C., \textit{CHMM,} p. 52.
  \item \textsuperscript{213} AV; 1.22.4.; Chand, D., \textit{Op. cit.}, p. 17.
  \item \textsuperscript{214} \textit{Ibid.}, 5.5.1-8; Eng. tr. by Bloomfield, M., \textit{SBE,} Vol. XLII, p. 385.
  \item \textsuperscript{215} \textit{Ibid.}, 5.5.1.
  \item \textsuperscript{216} \textit{Ibid.}, 5.12.1.
  \item \textsuperscript{217} Nadkarni, A.K., \textit{IMM,} Vol. I, p. 211.
  \item \textsuperscript{218} \textit{RV}; 10.16.14; \textit{AV}; 18.3.60.
\end{itemize}
it was considered as a soothing herb.\textsuperscript{219} It was applied on burns for the relief of the victim.

\textit{Śyāmā}\textsuperscript{220} was a medicinal herb of black colour which was used for curing untimely greying of hair. It was also used in leprosy. It cures diabetes, bronchitis, boils and wounds.\textsuperscript{221} It should be identified with black variety of \textit{bhṛṅgrāja}.

\textit{Sadampuṣṭā}\textsuperscript{222} was a medicinal plant. It has been mentioned as \textit{Sahasracaṅku}, having a thousand eyes. Dārila takes its meaning \textit{tṛisāṁdhyā} and Keśava \textit{Saṁdhyā}. Sāyaṇa comments that its leaves were similar to the shape and size of eyes.\textsuperscript{223} It possessed magical powers. Therefore, amulets made of it were tied on arms for warding off evil effects of demons. \textit{Sadampuṣṭā} is mentioned in \textit{Grhya Sutras} for \textit{Sāṁvartana} \textit{Saṁśkāra}.\textsuperscript{224} It was used to cure victims of serpent bites.

\textit{Sarṣapa}\textsuperscript{225} (\textit{brassica Nigra} or \textit{B. campestris Var. Sarson prain}) denotes mustard or mustard seed. It occurs only a few times in later \textit{Saṁhitās}. The synonym of this plant is \textit{Ābayu}.\textsuperscript{226} It is identified with rai (Hindi). The leaves of the plant are used as a vegetable but in the \textit{Dharma Sūtras} its vegetable is prohibited. In the \textit{Grhya Sūtras} it is mentioned in \textit{puṁsavana, Jātakarman, Śāntikarman} and \textit{Samāvartana}.\textsuperscript{227} The seeds of this plant are used in medicine as poultice being a useful and simple rubefacient and \textit{Vesicant}.\textsuperscript{228} When applied externally mustard oil is very useful in mild attacks of sore throat, internal congestion and chronic muscular rheumatism.\textsuperscript{229} The oil is also

\textsuperscript{219} \textit{Ibid.}, Sharma, P.V., \textit{Dravyaguna Viśnāna}, Pt-IV, p. 149.
\textsuperscript{220} \textit{AV}; 1 24.3-4; Chand, D., \textit{Op. cit.}, p. 19.
\textsuperscript{221} \textit{Ibid.}
\textsuperscript{223} \textit{AV}; Eng. tr. by Whitney, W.D., pp. 184-185.
\textsuperscript{224} \textit{KGS}; 3.1.2-4. \textit{ŚGS}; 3.1.3.
\textsuperscript{226} \textit{AV}; 6 16.1-2.
\textsuperscript{229} \textit{Ibid.}
used as an article of diet and is rubbed on the skin before bathing. The oil rubbed over the chest has a great effect in relieving bronchial irritation. In influenza the oil rubbed on the feet after a foot-bath gives immediate relief. A little rubbed on the nose stops the running within a few days. It is used by natives to anoint the body before bathing. It prevents excessive perspiration and prickly heat, also protects the skin from the direct rays of the sun. As a substitute for ghee, it is extensively used in cooking. The oil is very effectuous as stimulating in cough, catarrh etc. This plant is used in ophthalmia. The stem of the mustard plant smeared with mustard oil is also fastened upon patient as an amulet. The leaf of the mustard plant mixed with the oil is given to the patient. Still oil is extensively used in cooking.

Sahadevi was a medicinal plant. In the Atharva Veda arundhati, subhagā and jivalā are mentioned as its adjective. It was a queller of diseases and full of power. It was also used to increase milk. The Pāraskara Gṛhya Sutra mentions the use of its root.

Sahmāna was a medicinal herb. It is called rakṣoghana and is full of power. It increases the virility of man. It is also used as an adjective of Prśnīparṇī.

Sahasrapariṇī was a very useful herb. It was supposed to bestow vigour. It was a wide spreading grass with one thousand leaves. It contained a hundred tendrils and 33 descending shoots. It was brown in colour. It has also been used as a

230. Ibid.
231. Ibid, p. 531.
235. AV; 8.2.6; 8.7.5; MS; 2.7.16, VI, Vol. II, p. 442.
236. AV; 5.139.1.
237. Ibid, 5.139.3.
synonym of Śaṅkhapuṣpi elsewhere. Should it not be proper to append it with Śaṅkhapuṣpi.

_Soma_: The Soma plant, the _soma_ juice and the soma sacrifice form an important and special features of the life of the Vedic priests. _Soma_ was the famous plant of divine origin which bestowed light and life. It was a drink of the privileged few in the ancient Indian society and the juice obtained by pressing the stems of Soma had the potency to endow divine powers on the feeble mortals. It was in fact an intoxicating drink which freed them from the earthly cares sometimes. Its capacity to endow divine power and vigour in the body of one who took it probably led the authors of Vedas the dedicate full IXth maṇḍala in its praise.

The Vedic literatures and the _Avesta_ describe the _Soma_ plant in detail. _Hoama_ grew on the Alburz mountains and its use was popularised by Prophet Hoam, who is said to have bestowed his own name to it. It remains to be seen if the _Hoam_ of the Parsis is the _Soma_ of the early Sanskrit writers? This plant, when properly squeezed, yielded a juice which was allowed to ferment and when mixed with milk and honey produced an exhilarating and intoxicating beverage.²³⁸ R. Von., Roth has rightly suggested that _Hoam or Soma_ was not used to obtain liquor from its juice but that only a small portion of it was added to the liquor obtained from grain.²³⁹ In fact Soma was an adjunct in the preparation of the beverage of the ancient Āryans but did not itself afford a sweet exhilarating fluid. The juice of the plant appears to have been used like hops in Europe, as an ingredient in the preparation of a kind of beer and not as a beverage by itself.²⁴⁰ The expressed juice produces astringent, narcotic and intoxicating effect.

Now when it becomes clear that Soma juice was an adjunct in the preparation of the sweet beverage which endowed divine powers, what type of plant it was? Where did it grow?

What was its nature? One thing is clear that it grew wild. It was not a cultivated plant.\textsuperscript{241}

It was very difficult to procure the \textit{Soma} plant, which was a cherished drink of the Gods and some privileged people. Although it has been said that the plant grew on the mountains, that of Muñjajatā being specially renowned, it is not possible to locate the mountain exactly. It grew in central Asia and the western parts of India and as a climbing shrub. \textit{Soma} appeared to be the product of the west and it was usually brought from there to the east.\textsuperscript{242} \textit{Soma} plants were brought to the place of sacrifice on bullock carts.\textsuperscript{243} These grew in the white half of the month (\textit{Śuklapakṣa}) and ceased to grow in the dark half of the month (\textit{Krṣṇapakṣa}). As it did not grow in the Yamuna-Ganga Doab, it was an arduous job to bring them from the western mountainous regions.\textsuperscript{244} It was for this reason that the several substitutes were prescribed for it.\textsuperscript{245} \textit{Phālguna} plant was such a substitute which was of two varieties namely the red flowering plants and the brown flowering plants. The latter was akin to the \textit{Soma} because Soma also was white or brown coloured. If it was not available, it could be replaced by \textit{Śyenahṛta} plant. \textit{Āḍāra} plant also could be used in case the \textit{Śyenahṛta} was not available. If the sacrificer could not get even that, he could use instead brown \textit{dūrvā} as its brown colour made it look like \textit{Soma} plant. In case of non-availability of this, he could use any kind of yellowish \textit{Kuśa}.

The problem is of identifying \textit{Soma} plant. According to Rice \textit{Soma} could also be a sugar cane. It seems impossible to suppose that branches of sugar-cane could have been carried from central Asia to India so as to still contain their sweet sap. As a matter of fact, the sugar-cane sap in India dries of completely in less than a month. Sugar-cane is very liked by the native planters.

\textsuperscript{242} Roy, B.P., \textit{LVE}; p. 181.
\textsuperscript{243} \textit{ĀB}; 1.3.14.
\textsuperscript{244} Roy, B.P., \textit{LVE}, p. 181.
\textsuperscript{245} \textit{ŚB}; 4.5.10.1-6.
of south-eastern India from Bengal to Cochin-China. It was probably first cultivated systematically in India. It is, therefore, highly improbable that any form of sugar cane was cultivated in central Asia during Vedic period, or was perhaps even known to the Sanskrit speaking people prior to their invasion of India. According to the findings of Schindler, the hoam plant grows to the height of four feet and consists of circular fleshy stalks of whitish colour and has a sweetish taste.\(^{246}\) After being preserved for a few days, it turns sour and its stalks become yellowish brown and break easily at joints, forming small cylindrical pieces. In this condition they lose their leaves which are small. It shows that Soma is a plant whose identification may be established with Sarcostamma. But there is no evidence of Sarcostamma being found in central Asia.\(^{247}\) Sarcostamma is, however, easily available in Deccan from where it is imported to upper and northern India.\(^{248}\) It has much milky juice of a mild nature. But the twigs of Sarcostamma are not dark brown, they are rather of a delicate succulent green colour which makes its identification with Soma doubtful. Majumdar describes five varieties of Soma.\(^{249}\)

(i) Sarcostamma brevistigma  
(ii) *S. Intermedium.*  
(iii) *Periploca aphylla.*  
(iv) *Ephedra-vulgaris.*  
(v) *Cannabis Sativa.*

It appears that Sarcostamma is merely one of the varieties of Soma. R.L. Mitra suggests that Soma plant could be identified with hop of Europe. Hillebrandt is of the view that neither hops nor the grapes can be pinpointed as being Soma. Wasson has identified Soma with *amanita muscaria*, the brilliant red mushroom with white spots.\(^{250}\) The identification of Soma with

\(^{246}\) Vide Roy, B.P., *LVE*, p. 182.  
\(^{249}\) *Ved. Pl.*, p. 611.  
Afghan grapes as proposed by George Watt also is not beyond shadow of doubt. The *Soma* plant has become extinct and to comment on the opinions of aforesaid savants regarding their proposed identification of *Soma* would be mere an exercise in futility.

*Ephedra Vulgaris* also has been identified with *Soma* plant because it is said to occur throughout the Himalaya. But it has already been said that it was not purely a north-Indian plant which also makes it doubtful. In the present state of our knowledge; it is not possible to identify *Soma* plant with any amount of accuracy.

*Saktya* (tilaka) was a very sacred plant which has been mentioned as “The best among the *auśadhis*.” It was used as medicine for curing ailments. The *Atharva Veda* describes the importance of amulet made of this plant. It was tied on arms for preventing bear and ensuring protection from beasts, diseases and adverse elements of nature. According to Weber it designates a crystal (literally many cornered). It is found in the drier climates of Ceylon, Baluchistan and north-west Himalayan Tarai.

*Srekaparṇa* was a kind of plant mentioned only in the *Brāhmaṇas*. It seems to like the oleander leaf. It is identified with Karvir or Kaner (Hindi). Its flowers are white, yellow and red. Its botanical name is *nerium ordosum* or *N. indicum*. It is found in the Himalayas from Nepal and west wards to Kashmir upto 6500 ft.

252. *AV*; 2.11.1-5; 8.5.11; Eng. tr. by Bloomfield, M., *SBE*; XLII, p. 575. (An amulet made of *Saktya* tree defined by the commentators with great unanimity as the tilaka tree (*clerodendrum pholomoides*).)
253. Ibid., 8.5.11.
254. Ibid., 8.5.1-22.
257. *TS*; 3.6.6.3; *AB*; 2.6.15; *VI*, Vol. II, p. 291.
Haridrā is mentioned in the vast Vedic literature. It is identified with *haldi* (Hindi). Its botanical name is *Curcuma longa* Linn. Haridrā has been referred to in several hymns of the *Ṛg-VEDA* and the *Atharva Veda*. The *Taittirīya Brāhmaṇa* etc. which bear ample testimony to its utility in the economic life of the people of ancient India. It grew wild but was also cultivated. It is extensively cultivated all over India. Its plant is small and laves are green and of large size. In Bombay Presidency there are two varieties with hard rich colour red oval rhizomes chiefly used in dyeing, known as *lokhalḍi, halad*, and the other with softer, larger, lighter colour long rhizomes which are usually used for eating. Its balls were the most useful objects which yielded yellow ingredients for dyeing clothes and preventing greying of hair. Powder made of haridrā mixed with water was rubbed on body to make the skin smooth and soft. It is used to cure several ailments. It is given in urinary diseases. Milk boiled with turmeric rhizome added to it and then sweetened with sugar is a popular remedy for cold. Internally turmeric is given in affections of the liver and in jaundice. The *Kauśika Sūtra* mentions that the patients is given to yellow curcuma in ghee for removing poison. Still it is used as a spice. The juice of fresh rhizome is anthelmintic and is applied to recent wounds, bruises leech-bites.

Haritaki (Terminalia chebula) is identified with harre (Hindi). The synonym of the plant Haritaki is Haritaka. This tree grew wild in the forest of northern India, Madhya

259. RV; 1.50.11-42; AV; 1.21.1; TB; 3.7.6.22-23; HSŚ; 26.1.74, GDS; 1.21.
261. RV; 1.50.11-12; AV; 1.24.1; TB; 3.7.6.
266. Chakraberty, C., CHMM. p. 194.
267. AV; Eng. tr. by Bloomfield, M., SBE; XLII, p. 236, PGS; 4.1.41-42, Pāṇini, Asūt; 4.3.167.
Pradesh, West Bengal, common in Madras, Karnataka and in the south parts of the former Bombay Presidency. Its fruits were very useful and were used as medicine conducive to digestion.\textsuperscript{269} It is also used to cure several ailments such as fever, cough, asthma, urinary diseases, piles, eye affections, worms, muscular rheumatism, atonic dyspepsia, chronic diarrhoea, vomiting, dysentry, flatulence, colic, enlarged spleen and liver and externally aphthae chronic ulcerations, burns and other skin diseases, bleeding piles and some vaginal discharges.\textsuperscript{270} The practitioner ties an amulet upon the patient a substance promoting micturation.\textsuperscript{271} Its importance lies in the fact -that it not only served as ingredients of drugs curing several diseases; it also had a place of utility in the economic life of the people.

\textsuperscript{269} Ibid.

\textsuperscript{270} Ibid; Chakraberty, C., CHMM, p. 35.

\textsuperscript{271} AV; Eng. tr by Bloomfield, M., SBE, XLII, p. 236, Sharma, P.V., Dravyaguna Vijñāna, Pt. IV, p. 169.


VANASPATI (PLANTS IN GENERAL)

Vanaspati or Vṛkṣa are used ordinarily to denote trees. Yāska has taken Vanaspati to mean the lord of forests. It denotes tree and then post or pole. Vanaspati may, therefore, be taken to mean all kinds of tree of both soft and hard wood. In some passages of the Vedic literature it is applied either to a part of the chariot or to the chariot as a whole. It also means a ‘wooden drum’ and a wooden amulet. Different parts of the trees and their types have been mentioned as shrubs, viśākha with spreading branches, herb, sasa. The trees were not only of use in timbering in the houses rather they were also used for the sacrificial purposes. They had medicinal properties also Vānaspatya has been used to denote small trees. However, the term ‘Vanina’ or ‘Vṛkṣa’ has been used to denote small trees in the Rg-Veda. To conclude the terms ‘Vanaspati’ and Vṛkṣa have been used to denote respectively trees and small trees. The Vanaspati undoubtedly played an important role in the economic life of ancient India. Sometimes these were used for timber-

1. RV; 1.64. 20, 22.
2. Ibid., 1.166.5; 3.34-10; 5.7.4.
4. RV; 1.51.3; 10.79.3. AV; 8.7.4.
5. RV; 8.8.14; 11.9.24; SB; 11.1.7.2; 11.3.1.3; AB; 8.16.1; Also Sharma, P.V., Dravyaguna Vijnāna, pt. IV. Int. p. 6.
ing work, roofing and thatching, chariot making, dice making and sacrificial yupas. Not only this certain plants were of exclusive medicinal value, which led the authors of Vedic literatures to laud their role in detail.

Adhyāṇḍā or Adhyāṇḍā first occurs in the Śatapatha Brāhmaṇa. This tree should not be near a burial place. Sāyana says that its fruits are in groves. It is mentioned in the Kauśika Sūtra that mixture of rice and barley with two adhyāṇḍā seeds and milk of a cow which has a calf of same colour is given in puṁsavana on the right nostrils of women with his right thumb. Dārila called it paraṇaphalā. Powdered roots of adhyāṇḍā tree is given to the woman in menstrual period for conception (garbhādhāna). It is commonly found in the plains of Himalayas, Ceylon, Assam, Burma and also in the hotter parts of India. Majumdar takes it as mucanna pruriens, phyllanthus urinaria and phyllanthus niruri.

Araṭu was a plant of hard wood. Macdonell and Griffith take it colossanthes indica from the wood of which the axle of chariots were made. Majumdar has identified it as the synonym of arātaki. He takes it prospis specigera and acacia suma. In the Ēga Veda araṭu and in the Kauśika Sūtra aralu are mentioned as the synonyms of araṭu. In the opinion of Sharma araṭu and aralu both are the same. He takes it ailanthes excelsa Roxb. This tree is much useful. Bark and the leaves in infusion are reputed as tonic in debility after child-birth. It is specially useful in dyspepsia, bronchites and asthma.

Aralu is a kind of plant which is identified with śyaṇāka.

7. ŚB; 13.8.1.16; VI; Vol. 1, p. 20.
9. ŚGS; 1.19.1.
11. RV; 8.46.27; AV; 20.131.15; VI; Vol. 1, p. 33.
16. RV; 10.99.10; AV; 20.131.15; Kauś Sūtra; 43.1.
It is found from Himalayas to Ceylon upto 300 ft. Its timber is of yellow colour. Thus it seems *oroxyllum indicum*. It has been said in the *Rg. Veda* that the axle of chariot was sometimes made of its wood. Most of the *Grhya Sūtras* state that it should not be used as fuel and *Samidhā*.

*Aśvattha* (*ficus-religiosa*) is considered one of the most sacred trees by Hindus. It is viewed as a female of the Banyan. It is largely planted as an avenue and roadside trees, specially near the temples. It is called *Peepal* in Hindi. The word *aśvattha* occurs twice in the *Rg. Veda*. In the first reference it has been translated as ‘rock-born’ plant. The hymn 97 of the Book 10 of the *Rg. Veda* deals with the medicinal plant, which is one of the most ancient descriptions of the medicinal plants in the human literature. There the aśvattha has been described as the mother of mankind, who has several applications and which can make people free from diseases. The medicinal value of the *aśvattha* plant had been fully realised by the authors of *Rg. Veda*.

In course of explaining the origin of the *aśvattha* tree it has been stated that Prajāpati, after creation of mankind hid himself in disguise as a horse (*aśva*) beneath the earth. Out of his head the tree was born. Because of being born out of a horse (*aśva*) the tree was named *aśvattha*. Another story relating to the origin of *aśvattha* is that: *Agni* had hidden himself in disguise of horse in this tree. Because it was the abode of *Agni* in the form of *aśva*, it was named *aśvattha*. At one place it has been stated that Indra slew Tvāstr's son Viśvarupā. Seeing his son slain Tvāstr exercised Indra and brought soma juice for witchery, and with held from Indra. Indra by force drunk off his soma juice, thereby committing a desecration of the sacrifice. He went as under every direction and his energy

18. *GGS*; 1.5.15: *PGS*; 1.21; *KGS*; 2.6.9; *JGS*; 1.1.
19. *RV*; 1.135-8; 10.97.5.
20. *MS*; 1.6.12.
21. *TB*; 1.1.3.9.
and vital power flowed from every limb. From his skin his honour flowed and became the aśvattha (Ficus religiosa) tree. It is specially worshipped on every Saturday of the month Śrāvāna and on every Monday (Somvati) on which a new moon fails. The Hindu who plants a peepal tree does so expecting that just as he thereby affords shade to the fellow creatures in this world, so after death he will not be scorched by excessive heat in his journey to the kingdom of Yama. There are five sacred trees among the Hindus viz, peepal, gular, bargad, pākar and mango, but of these the first is by far the most reverenced.

A good Hindu who on a journey sees a peepal tree take off his shoes and will walk five times round the tree from right to left. While doing so he repeats the verse which may be translated. The roots are Brahma, the bark Viṣṇu, the branches Mahādeva. In the bark lives the Ganges, the leaves are the minor deities. Hail to thee, the king of trees. The aśvattha, the darbha and the soma have been described as immortal oblations. These have been described as Amṛta (nectar). One who takes a drink of these shall become hundred years old. The gods sit under their shade in third heaven. Male offspring is extracted for under its shade, pious women moving round its trunk 108 times. So sacred is the peepal tree that none will destroy it, even when it grows on the services of wall and buildings pulling down the strongest masonry. The sacred character of the aśvattha probably inspired the artists of the Indus civilization to depict the tree on the seals. The figure of aśvattha tree is seen on some of the Harappan seals and potteries. One very interesting seal found from Mohenjodaro depicts a horned goddess in a Peepal tree. She is being wor-

22. ŚB; 12.7.1.1; Eng. tr. by Upadhyaya, G.P., 172.
23. Ibid., 12.7.1.9.
26. Ibid., 8.7.22; p. 501.
27. Ibid., 5.4.3; Ch. U; 8.5.3; KU: 1.3.
shipped by a figure wearing horns. A goat with a human head watching the ceremony and seven pigtailed women are in attendance.  

Sacrificial vessels were made of its wood. Its hard wood formed the upper piece of arañi used for kindling the sacrificial fire. It planted its roots in the shoots of other trees, specially the khudira and destroyed them, hence it is called the destroyer (vaibāda). Due to its importance and hard nature of its wood, aśvattha was considered to be the kṣatriya among trees. The Aitereya Brāhmaṇa mentions that kṣatriya drinking the juice prepared of the fruits of aśvattha beautifies himself with the luster and sovereignty.

In certain sacrifices its wood was used for offering to Gods. Its berries are referred to as sweet and are eaten by the birds. This plant is grown on the śami tree and it contains medicinal ingredients. The berries of aśvattha were used for curing wounds. Amulets made of its wood were tied to the body for protection from evil spirits. The fruits of aśvattha when ripe were reddish and blackish and were consumed even by human beings. Mekṣana, a mixing rod made of aśvattha wood, one aratanī long having at one end a small square board of four fingers for stirring and mixing the flour in boiling water to prepare a purodāsa. The seeds of aśvattha are cooling, laxative and alterative. Leaves and young shoots are purgative, bark is cooling, astringent, sweet, has maturative powers. Its fruit is

30. RV; 1.35.8; VI; Vol. 1, pp. 43-44, 462. Also Upadhaya, G.P., ŚB, p. 170.
31. VI; Vol. 1, pp. 43-44.
32. Ibid.
33. AB; 7.5 32, AV; 3 6.6.
34. RV; 1.164. 20.22; VS; 28.20.
35. AV; 6.11.1.
36. Ibid.
37. Ibid.; 2.6.8; 3.6.1.
38. Ibid.; 3.6.6.
laxative and digestive.\footnote{41} It is used in gonorrhoea, skin diseases, cracked feet and internally dysentery.\footnote{42} Therefore the aśvattha occupied a place of importance in both ancient Indian economy and religious life.

Āmalaka\footnote{43} was a sacred tree of large size mentioned in the later Saṁhitās. Its fruit being named after it. This tree is botanically known as emblica officinalis gaertn.\footnote{44} Being medicinal properties, these were used in different forms such as dried fruit, the nut or seed, leaves, root, bark and flowers. The Āyurvedic texts of post Vedic times furnished detailed information about the use of their fruits for curing ailments.\footnote{45} It was used in worms, acidity, diabetes, inflammations of the lungs and eyes, ulcerations, gastrointestinal disorders and discharges, painful micturation and internal haemorrhages.\footnote{46} The fruit is edible and is regarded as an astringent tonic. It is used in diarrhoea and dysentery. It contains tannic acid and is used extensively in dyeing and in making ink.\footnote{47} On account of its beneficial effects and usefulness for patients suffering from various kinds of ailments, āmalaka is called dhātri or foster mother.\footnote{48}

Āmra\footnote{49} (magnifera indica L) has not been referred to in the Vedic texts. In the Jaimitiya Brāhmaṇa\footnote{50} its name has been enumerated along with badara. The Brhadāraṇyakopaniṣad\footnote{51} also mentions it. In the Sāṅkhayana Grihya Sūtra\footnote{52} the commentators

\footnotesize{\begin{itemize}
\item 42. \textit{Ibid.}, Vol. II, p. 289.
\item 43. \textit{Ch. U}, 7.3.1; PGS, 4.1.41; ŚGS, 1.11.2; KGS, 2.8.2; 2.9.1; Śāṅkhali-khita Dharmasūtra, 448; Viṣṇu Dharmasūtra, 99.12.
\item 45. Roy, B.P., \textit{LVE}, p. 183.
\item 47. Chakraberty, C., \textit{CHMM}, p. 43.
\item 48. Chakraberty, T., \textit{Food and Drinks in Ancient Bengal}, p. 63.
\item 49. PGS, 1.19; ŚGS, 1.11.2; KGS, 2.6.9, Pāṇini, \textit{Aṣṭ.}, 8.4.5.
\item 50. \textit{JB}; 2.156.
\item 51. \textit{BU}; 4.3.36.
\item 52. ŚGS; 1.11.2.
\end{itemize}}
said it *phalottama*. The *Dharmasūtras* and the *Gṛhyasūtras* prescribe its fruits to be offered to priests on the occasion of *Śrādha* ritual. This tree is so sacred that its leaves were used on many occasions in Vedic rituals. In the *Jātaka* stories there are reference to several mango groves, some of which were donated to the Buddhist *Sāmaṇḍha*. This tree is indigenous to India and cultivated in many varieties almost everywhere in the plains and gardens. It is the par-excellent and most delicious of Indian fruits. Ripe fruit is very wholesome and nourishing and useful in nervous and atonic dyspepsia and constipation. A fluid extracted from the fruit produces immediate effects in diarrhoea, chronic dysentery, bleeding piles, round-worms, leucorrhoea, scurvy, haematemesis, aphonia, diabetes and externally in parasitic skin diseases, bruises and cracks in the feet etc. The kernel which contains a good deal of gallic acid, is used as an anthelmintic, and in hemorrhoids and menorrhagia. The bark’s gum resin is used as an astringent in catarrhs and in scabies.

Āhva is a doubtful plant. Dārila called it *palāśa*. Keśva called it *tṛṇa* or reed. The *Atharva Veda* mentioned it in the battle song. It acts as a powerful obstacles in the way of an advancing enemy. Traps and nets are made of āhva to capture and destroy the enemy forces. In fact it stands for a tree.

53. Śaṅkhalikīhita *Dharma Sūtra*, 220.
57. Ibid.
59. Ibid.
61. Ibid., pp. 582-84.
Vanaspati (Plants in General)

Udumbara (ficus glomerata Linn) has been identified with gullara (Hindi). We do not have any reference to this tree in the Rg Veda and the Yajurveda. But the word udumbala occurs in the Rg Veda. Sāyana has interpreted it as follows: udumbalau urubalau vistirṇabala. Later on it has taken to stand for udumbara, which was energy growing. However it has been frequently mentioned in the later Vedic texts. On the reverse of the coins issued by the Audumbara tribe, the udumbara tree is found invariably engraved. It has been rightly suggested that the udumbara tree happened to be the national standard of the Audumbaras; which very much explains its frequent depiction on their coins.

Its flowers were invisible and as such they were used as simile for a non-existent thing. Seeing the Udumbara flower was a bad omen. Its wood was very hard and durable. Its fruits when ripe were red and as sweet as honey. It was a wild plant. The main characteristic of udumbara tree was that it yielded fruits three times a year. Udumbara tree is also spoken to have been born of the flesh of Indra. The fruits of this may have formed the staple diet of the people in ancient days. Moreover, udumbara was a tree of sacrificial importance. In the fight between gods and the Asuras, the udumbara tree sided with the former, where as all other trees sided with the later. Ultimately the gods emerged victorious and transferred all the pith and sap of the conquered trees to the udumbara tree. Since udumbara contained whatever pith and sap other trees had, it was always moist and full of milky juice. Therefore by offering its wood to Agni, the sacrificer gratified him by every kind of food. The sacrificial significance of udumbara tree can be realised from the statement that the sacrificer having established the sacrificial

63. RV; 10 14.12.
64. AV; 19.31.1-14; 20.136.13; MS, 1.7.5; 1.8.1; SB, 3.2.1.33; 5.2.2.2; 6.6.3.2.3; 7.2.4.14; 9 2.2.3; 9.2.3.40; 9.7.1.9.
65. AB; 7 5.
66. PB; 16.6.4.
67. AB; 5.24.
68. SB; 12.7.1.9.
69. SB; 6.6.3.2-3; KŚS, 16 4.37; Vide Upadhyaya, G.P., SB, p. 178.
post made of *udumbara* wood (Audumbari) ensured for himself strength and vigour because it symbolises strength.\(^{70}\) The *udumbara* post has to be placed in the centre of the *Sadas* is a shed or tent, facing the east with its long side, which is to measure 8 or 21 or 24 or even 27 cubits and the breadth by 6 cubits. The *udumbara* post has to stand exactly in the centre of the shed. In the middle the shed is to be of the height of sacrificer so that the sacrificial post was as high as the sacrificer and the top knot was directed to the east.\(^{71}\) *Udumbara* itself means strength and food. As the *udumbara* tree was considered to be the embodiment of strength, the royal throne was made of its wood, so that it would bestow strength and powers on the king.\(^{72}\) The kṣatriya performing Rājasūya ceremony enjoyed the juice prepared of the fruits of *udumbara*, because it was considered that it would nourish the king designate will vigour.\(^{73}\) Amulets made of *udumbara* wood (*Audumbara-маṇи*) were used for obtaining material prosperity and Warding off evil.\(^{74}\) It has been said that the learned officer in-charge of production of all kinds, may bring about increase and betterment of all kinds of cattle in dairies of men by help of *Audumbara-маṇи*. Further it has been prayed “May the generative *Audumbara-маṇи* produce prosperity and welfare for all. The *Audumbara-маṇи* has been described as the embodiment of nourishment. *Audumbara-маṇи* is the enhancer of peace of domestic life. It has therefore, been rightly installed for riches and prosperity. Containers made of its wood were used for mixing different kinds of liquors in sacrifices.\(^{75}\)

The *udumbara* tree was also of some medicinal value because its use has been recommended in the hysteria.\(^{76}\) Bark, leaves and unripe fruits are astringent, carminative and vermi-

74. *AV*: 19.31.1-14; Also see, Sans. text with Eng. tr. by Chand, D., p. 759.
75. *ŚB*: 5.3.4.2; Also Upadhayay, G.P., *Op. cit.*, p. 177.
cide. According to Ayurvedic Nighaṇṭu the bark is cooling, sweet and astringent and fruits are specially cooling. Its root is used in dysentery and the bark is applied to the ulcer. From the foregoing discussion it becomes clear that the udumbara tree is not solely of sacrificial importance, it also is energy giving and of some medicinal value. This led the ancient Indian authors to praise the tree.

Eraṇḍa is first mentioned in the Śāṅkhāyana Āraṇyaka. It is an evergreen shrub which is identified with castor oil plant. It grew wild but was also cultivated. It is indigenous to America, but cultivated in most parts of India, specially on the Coromandel coast and in Travancore. The castor seeds oil is employed by native poorer classes for illuminating purposes. In England the oil obtained from African seeds is said to be used in manufacture of certain transparent soaps. Later it has also been recommended as a substitute for Olive oil in dressing woollen clothes and as a good drying oil. The Chinese are said to form a varnish by boiling the oil with oxide of iron.

Eraṇḍa contains medicinal properties also. The seeds and oil of the plants are purgative. It has been stated that if the embryo be wholly removed, four or five seeds may be used as gentle and safe purgative. Numerous cases of poisoning from eating the entire seeds are however on record. The symptoms appear to be burning in the mouth and faces to be feeling distention and pain in the abdomen, nausea, vomiting, violent purging heat and congestion of the extremities, delirium and insensibility followed by depression before recovery. However, externally the oil is applied as a remedy for itch, herpes, chronic

78. ŚA; 12.8; VI; Vol. 1, p. 121; Ved. Pl., p. 650.
80. Ibid.
81. Ibid., p. 547; Chakraberty, C., CHMM, p. 54.
82. Ibid.
rheumatism, and as a cleaning application for wounds and ulcers. The leaves are rubefacient and a decoction externally applied is said to excite the secretion of milk. The root bark is used in dyspepsia and diarrhoea.

_Eranđa_ is much useful in everyday life. It is readily propagated by Cuttings. The young twigs are used as detergent tooth cleaners and also said to be employed in making pipe stems. Its leaves are used as animals fodder and seeds are used for extracting oil. The young shoots and leaves are also used as a manure for coconut trees.

_Aukṣagandhi_ is mentioned as a plant in the _Athrava Veda_ along with _guggulu_ and _naladi_. It denoted a plant having the smell of bull’s grease. Perhaps it was a fragrant plant.

_Kapittha_ ( _feronia elephantum_ ) was wild plant. Its leaves and flowers were used in rituals. It is a thorny tree indigenous to India, Ceylon and the East Indies. With pinnate leaves and white flowers. Its leaves smell like anise and are used as a carminative in the intestinal troubles of children. Its fruit and gum is given in diarrhoea and dysentery. It also increases the virility or the semen of a weak man. It is identified with _Kaitha_ (Hindi).

_Kampilla_ was a plant of hard wood. Its ancient name is _Kāmpila_. Botanically it is known as _crinum amaryllacee_. Prof. Shrama takes it _mallothus philippinensis_ Muell. Arg. It is also found at several places in _Kauśika Sūtra_. Its leaves were

83. Ibid.
84. Ibid.
89. Sharma, P.V., _Dravyaguna Vijnāna_, Pt. IV, p. 42.
91. Ibid.
used in sacrifices and manthanī (chura-staff) was made of its wood.\textsuperscript{92} It was used as medicine in fever and kṣetriya diseases. It is found in the Atharva Veda,\textsuperscript{93} a prayer for earthly and heavenly success and protection from calamities and called Sarvavyādhibhaisūgyam, “a remedy for all diseases.”

Karaṇja (pongamia glabra) is mentioned in the Ṛg Veda and the Atharva Veda as the name of a demon.\textsuperscript{94} It was a wild plant regarded as an inauspicious tree, so the use of this tree was forbidden as Samidhā.\textsuperscript{95} Its fruit is not edible.\textsuperscript{96} Its seeds yield a yellowish brown oil (pongam oil) which is used externally in rheumatism and is specially recommended in parasitic skin diseases as well as cutaneous affections.\textsuperscript{97} The leaves are used in children intestinal troubles, specially in diarrhoea. Dried flowers in powdered form in combination with other ingredients is given as a decoction in diabetes to quench thirst.\textsuperscript{98}

Karīra\textsuperscript{99} (capparis aphylla) was a leafless shrub of soft wood. It grew wild during rainy season. It is found in mountainous regions and along the banks of Yamunā in the Mathura area.\textsuperscript{100} Sāyaṇa thinks that it was a common tree in the Uttarāpattha, which yielded sweet fruits.\textsuperscript{101} The powder of Karīra fruits were used for performing Karīrt rituals, toward off drought. It contains medicinal property. Its root and branches were used for killing germs.\textsuperscript{102} It was used for boils eruptions and disease of the joints and as an antidote to poison.\textsuperscript{103}

\textsuperscript{92} Kauš. Sūtra.; 16.28; 27.7; 28.8; 43.20; 48.41; 76.31.
\textsuperscript{93} AV; Eng. tr. by Bloomfield, M., SBE; Vol. XLII, p. 406.
\textsuperscript{94} ṚV; 1.53.8; 10.48.8; AV; 20.21.8.
\textsuperscript{95} KGS; 2.6.9; Viśnu Dharma Sūtra, 61.14.
\textsuperscript{96} Āp. DS., 1.5.17.26.
\textsuperscript{97} Chakraberty, C.; CHMM; p. 62.
\textsuperscript{98} Ibid; p. 63.
\textsuperscript{99} MS; 1.10.13; TB; 1.6.4.5; TS; 11.4.9.2-4; ŠB; 2.5.2.11; KS; 11.10.36.7 VI; Vol. 1, p. 139.
\textsuperscript{100} Sharma, P V., Dravyaguna Viṣṇu, Pt. IV, p. 43; Sharma, R.S., MCSFAI, p. 57.
\textsuperscript{101} Sāyaṇa.
\textsuperscript{102} Kauš. Sūtra.; 29.20.
\textsuperscript{103} Chakraberty, C., CHMM; p. 63.
Karkandhu\textsuperscript{104} is one of the three varieties of jujube fruits mentioned in the Samhitās and Brāhmaṇas. Its botanical name is *zizyphus nummularia*.\textsuperscript{105} It was considered to have originated from the mouth of Agni. Its stems and fruits were termed by the same name. Roy takes it with jāmuna\textsuperscript{106} but in fact it is a species of jujube.\textsuperscript{107} Its fruits are red (rohita)\textsuperscript{108} and are sweet like madhu. The powder made of Karkandhu fruits were used in sacrifices. It grew wild but also cultivated in the garden.\textsuperscript{109}

Kākambīra\textsuperscript{110} is an useful unbrageous tree mentioned in the Rg Veda.

Kārśmarya or Kāśmarya is botanically known as *gmelina arborea* Linn.\textsuperscript{111} As a tree it was known to be Rakṣasa-killer. Its wood was placed to the south of sacrificial altar to ward off the devils.\textsuperscript{112} In the Sata-patha Brāhmaṇa Kārśmarya was called rakṣoghana. Some of the Srauta Śūtras prescribed its wood for making sacrificial utensils.\textsuperscript{113}

Kārśmarya’s habitat is commonly the lower Himalayas, the Nilgiris and the East and West coast of India.\textsuperscript{114} It is useful in the form of infusion or decoction in fever, indigestion etc. An infusion of the tender leaves is also useful. The leaves ground into paste with water is applied to the forehead for headache

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104. *MS*, 3.11.2; *VS*, 19.23; *KS*, 12.10; *ŚB*, 5.5.4.10; 12.9.1.5; *JB*, 2.156.5; *KŚS*, 15.10.11; *HŚS*, 13.8.2.3; *VI*, Vol. 1, p. 139.
105. Sharma, P.V., *Dravyaguna Vijnāna*, Pt. IV, p. 44.
109. *MS*, 3.13.3, 3.11.9; *ŚGS*, 4.19.2; *PGS*, 4.2.86.
112. *TS*, 5.2.7.3-4, 6.2.1.5; *ŚB*, 3.4.1.16; *Ved. Pl.*, p. 652.
113. *ŚB*, 3.4.1.16; 7.4.1.37; 4.7.1 41.
114. *Āp. ŚŚ*, 1.2.30; *KŚS*, 17.4.12; *KGS*, 2.6.9; *Baudh. ŚŚ*, 4.1.6.10; 10.30; *HŚS*, 11.5.21.
and in fevers. It is also used to prevent abortions in the early stage of pregnancy.  

*Kiṃśuka (butea superba)* has been mentioned in the Vedic texts since the *Ṛg Veda* and onwards. It is used in the marriage ceremony for decorating the chariots. Sāyaṇa says that chariots were made of its wood but some commentators think that chariots were decorated from the red flowers of *Kiṃśuka*. It has been derived from the root *Kṛms*, meaning to illumine. It was a tree of bright and beautiful flowers supplying yellowish dye.

*Rāḍī* tree is prescribed to arouse the passionate love of a woman. Dārila and Keśava identified it with *badart* or christ’s thorn.

*Kṛcūḥ* was a very useful plant. Its charred remain have been discovered from Hastinapur Pd. III. It seems the *Kūrca* (seat) was made of it. This tree is botanically known as *nerium antidyserterica*. Its synonym is *holarrhena antidyserterica*. Its name in the different dialects of India is kurachi (Bengali), kureya (Hindi). It is common in some parts of Panjab, U.P., and Bihar. It ascends upto 4,000 ft in the Himalayas. Economically it is an important tree as parts of the plants have medicinal properties. The bark of the tree is used as a tonic and febrifuge and in dysentery. The seeds are used in cholera, and in chronic pulmonary affections. Amulets and beads made

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116. Ibid.
117. *ṚV*; 10.85.20; *AV*; 14.1.16; *Āp. GS*; 7.18.6; *HGS*; 20.6.3; Pāṇini, *Asī*; 4.2.80; VI, Vol. 1, p. 156.
121. *AI*; Nos. 10-11, pp. 130-33.
123. *AI*; Nos. 10-11, p. 134.
of its wood were worn round the neck as a medicinal charm.

*Kṛṣṇala*\(^\text{125}\) is botanically known as *arbus precatorius linnaeus*. It was a plant of medium size, which yielded hard and small fruits of red and black colour. It was also a unit of weight.\(^\text{126}\) All the commentators explain *yugamkṛṣṇalom* as gold. In a ritual a hundred *kṛṣṇalas* (*Śatakṛṣṇala*) were offered to *Agni*, as it was believed that it would increase fame and longevity of the sacrificer.\(^\text{127}\) It is found in the Himalayas and Ceylon ascending to 35,000 ft.\(^\text{128}\)

*Kṛmuka:*\(^\text{129}\) the earliest allusion to the *kṛmuka* or *krāmuka* tree is found in the *Vājasaneyi Samhitā* and the *Śatapatha Brāhmaṇa*. Although Vedic texts mentioned *Kṛmuka* tree as the personification of the *Agni* and said to be the product of Agni.\(^\text{130}\) This plant is botanically known as *areca catechu*. Areca is said to be Latinised form of the Malayan name. Its name in the different dialects of India is supari (Hindi); Gua, Supari (Bengali), Tambula (Assamese); *Puga-Phalam*, *gubāk* (sanskrit), Sopari, phophal (Gujrati), betel-nut palm (English).\(^\text{131}\)

The *kṛmuka* tree is a lofty and bearing pinnate leaves with the stalk rolled in the form of cylinder.\(^\text{132}\) It is most elegant like Indian palms with thin straight stem and crown of leaves looking like an arrow stuck in the ground.\(^\text{133}\) It also emboied the bow (*kārmuka*) and named after it.\(^\text{134}\) This tree is a native of Cochin-China, Malayean Peninsula and Islands. It is cultivate-

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126. *MS*, 2.2.2; *TS*, 2.3.2.2.2-3; *KS*, 11.4; *TB*, 1.3.6.7; *HŚS*, 3.8.20; 3.8 20; 13.1.62. 22.4.1-3, *Baudh. S Ś.*, 11.1, 13.23; *Kauś. Sūtra.*, 11.19, 52.20; Sharma, D.V., *Dvayagaṇa Vijñāna*, pt. IV, p. 53.
128. *TS*, 2.3.2.2.2-3; *MS*, 2.2.2; *KS*, 11.4; *TB*, 1.3.6.7; *Kauś. Sūtra*. 52.20.
130. *VS*, 11.70; *ŚB*, 6.6.2.1-13; *TB*, 1.4.7.3; *KS*, 19.10; *MS*, 3 1.9; *TS*, 5.1.9.3; *VI*, Vol. 1, p. 180; Macdonell, A.A., *PSD*, p. 76.
133. Chakraberty, C., *CHMM*, p. 84.
ted throughout tropical India in Bengal, Assam, Sylhet (Bangladesh). It flourished in the dry plateau of Mysore, Kanara, Malabar, Southern India, Assam and Burma.\textsuperscript{135}

The \textit{Sātopatha Brāhmaṇa} refers to its utility in the economic and religious life of the people of ancient India. Its wood was applied as \textit{Samidhā} and \textit{homadravya} in sacrifices and was also used for fuel.\textsuperscript{136} Its wood is very hard and durable. It is used for furniture, trenails, bows, spear-handles and for scaffolding poles in Ceylon.\textsuperscript{137} The trunk of the betel palm is used as roof rafters for the poorer classes and for building marriage booths.\textsuperscript{138}

The \textit{Krūnaka} contains medicinal properties also. The nut having red colouring matter which is sweet in taste. Its young nut is said to possess astringent properties and is prescribed in bowel complaints and bad ulcers.\textsuperscript{139} It contains a large proportion of tannic and gallic acids as astringent property. The powdered nut is useful in checking diarrhoea, arising from debility.\textsuperscript{140} It has also been found very useful in urinary disorders.\textsuperscript{141} The dried nut when chewed produced stimulant and exhilarant effects on the system.

The nut is also regarded as a nerve tonic and is used as an astringent lotion for the eyes.\textsuperscript{142} The juice of the young leaves mixed with oil is said to be used externally in lumbago.\textsuperscript{143} Its solution is useful in checking the pyrosis of pregnancy. It is used as astringent for bleeding gums. 

\textit{Tin} isurite is also used by native woman both internally and locally for stopping watery

\begin{itemize}
\item \textsuperscript{135} \textit{AV}; Eng. tr. by Bloomfield, M., \textit{SBE}, Vol. XLII, p. 374.
\item \textsuperscript{137} \textit{SB}, 6.6.2.11; \textit{VI}, Vol. 1, p. 180.
\item \textsuperscript{139} \textit{Ibid.}
\item \textsuperscript{140} \textit{Ibid.}, p. 298,
\item \textsuperscript{141} \textit{Ibid.}
\item \textsuperscript{142} \textit{Ibid.}
\item \textsuperscript{143} \textit{Ibid.}
\item \textsuperscript{144} \textit{Ibid.}
\end{itemize}
discharges from vagina. The fine aroma of the flowers is also utilized to perfume various confections and drinks.

The powdered young bark is anthelmintic. It is very useful as a vermifuge (worms) in dogs and other domestic animals. A piece of nut kept in the mouth allays thirst on long marches in sandy deserts where water is scarce. It is most useful in preparation of tooth-powder. The young undried nuts possess something which when chewed in excess gives rise to temporary giddiness.

A decoction of nut is used in dyeing and a kind of inferior catechu is prepared from it. The nut is also used as food. It is one of the indispensable ingredients which is used in preparation of pan or betel leaf and is used so universally by native of all classes. The chewing of pan is supposed to prevent dysentery. Besides being used as an article of luxury, it is also used in ceremonies. The nut is used in many religious ceremonies. It has been said in the Kauśika Sūtra that it removes the poison caused by serpent bites. The Satapatha Brāhmaṇa maintains that when soaked in ghee, and burnt, it leaves no ashes. Thus it appears that people of ancient India were aware of its sacrificial as well as medicinal value.

Khadira: Among the plants and trees mentioned in the vast vedic literature Khadira was tremendously significant in the economic life of people in ancient days. This plant is botanically known as acacia catechu. The synonyms of the plant khadira is mimosa catechuoides, acacia catechuoides, acacia,
*polyacantha* etc.\(^{154}\) Its name in the different dialects of India is khair or khair babul, *katha* (Hindi) khaiyar (Bengali), khoira, koir, (Assamese), *khadira* (Sanskrit). It has been referred to in the several hymns of the *Rg. Veda*, the *Satapatha Brāhmaṇa*, the *Atharva Veda*, the *Taittiriya Saṁhitā* etc. which bear ample testimony to its utility in the economic life of the people of ancient India. Besides the literary references, the figure of this tree has been found engraved on one of the seals from Harappa.\(^{155}\) Here we find a railing around the tree which increases its importance in the life of contemporary people.

Even now, this tree is common in most parts of India and Burma extending in the Sub-Himalayan tract westward to the Indus and eastward to Sikkim, ascending to the altitude 5000 ft. J.W. Oliver reports that trees 70 to 80 feet high are not uncommon. In Madhya Pradesh, it is plentiful in the forests of Bilaspur, Chanda and Raipur but it is a pity that the natives of Raipur seem to be ignorant of its value. In Gonda (U.P.) it is abundant. It is also found in the upper Godaveri region. In Gujarat *Khadira* is most abundant in the forests of Ahmedabad, Broach, Panch Mahala, Surat and Baroda. It is also found in the natives of Madras and in some parts of Mysore. Botanically it is a moderate sized, deciduous tree, with dark brown, much cracked bark and short hooked spines in pairs.

Its wood was very hard *bahuśāra*.\(^{156}\) So the bolts of the axle of a cart were made of it.\(^{157}\) Sacrificial utensils like jars, lids, spoons and sphya (implement shaped like a sword) were made of its wood.\(^{158}\) Besides the King sat on the throne made of *Khadira* wood as it ensured the durability of his region.\(^{159}\) As this plant originated from the bones of *Prajāpati*, its wood is

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154. *RV*, 3.18.19, 3.53.19; *AV*, 8.8.3, 5.5.5, 3.6.1; *KŚS*, 1.3.33; *TS*, 1.6.8.2-3, 3.5.7.1; *ŚB*, 5.4.4.12, 3.62.12, 13.4.4.5-9; *AB*, 2.1.1, *MS*, 3.9.3.
157. *ŚB*, 13.4.4.9; *AV*, 8.8.3.
158. *RV*, 3.15.19; 3.53.19.
159. *AV*, 3.6.1, *KŚS*, 1.3.33; *TS*, 1.6.8.2-3.
very hard. But the medicinal value of this tree has been dwelt on in detail in the Vedas. Extract of Khadira tree is a powerful astringent. It is worthy of note that the Vedic people were not aware of its medicinal property because at one place in Taittirīya Saṁhitā, it has been said that the amulets made of Khadira wood were put on the body for ensuring health. People of the Vedic times were however fully aware of its sacrificial value as well as its utility in the economic life of the people. But modern researches have proved that Khadira tree has ample medicinal properties. Internally it is useful in diarrhoea with pyrosis, depending upon a relaxed state of mucous membrane. It has been recommended to be given to the adults in the form of a simple powder with honey. It can also be given to one suffering from dysentry in larger doses upto one drachm. It has the reputation of being useful in the intermittent fevers and scurvy. A small piece held in the mouth and allowed slowly to dissolve is an excellent remedy in relaxation of uvula and the irritation of the fauces and troublesome cough which depend upon it.

The Hindu physicians recommended a piece of Catechu rubbed with oil to be kept in the mouth in hoarsenes. Catechu boiled down in five times its weight of water, to one eighth, then flavoured with nutmeg, camphor and betel nut and made into balls of a convenient size, is directed to be kept in the mouth for effections of the gums, palate, tongue, and teeth... It has been found very useful in gonorrhoea, gleet leucorrhoea. By Hindu physicians it is much used both internally and externally in skin diseases. Khadira in combination with other trees like Arundhati were useful for the cure of wounds. Powdered and mixed with water it is used in conjunctivitis. Hakims state that it will produce abortion, but at the same time

160. ŚB, 5.4.4.12.
161. Ibid., 13.4.4.5-9.
162. ŚB, 3.5.7.1.
164. Ibid.
165. Ibid.
166. Ibid.
it is useful for women who are barren but are desirous of having offspring. It increases the secretion of milk after delivery. It is probably keeping in view the medicinal property that the amulet of Khadira wood was recommended to be put around the neck for ensuring good health. In East Africa powdered and rubbed up with sulphate of copper and yolk of eggs it is a common application to Cancers.

Besides the herbal property Khadira was used for making gum. In the opinion of experts the Khadira gum is much superior to the Babul gum of India.

Chief products of this tree are Kath and Cutch. It is obtained by boiling down a decoction from the chopped wood, say for 20 hours continuously. In the preparation of Kath twigs are placed in the boiling liquid and upon these crystals of the substance generally known as Katha are deposited. From the above it appears that Katha has been tremendously useful to the people of India, which may have induced the Vedic people to devote several stanzas to this tree.

Kharjūra is a species of palms which grew wild. Its botanical name is phoenix silvestris. Its sap yields sugar in abundance in the winter season. But its fruits (dates) are small and somewhat less sweet and trifle astringent. Some badly carbonised seeds of Kharjūra discovered from Mohenjodaro prove its existence in the Harappan culture. The Taittirīya Samhitā states its mythological origin, that while yatis were being eaten, their heads felt away and turned into Kharjūra. Its fruits were used in sacrifices. It was called phalottama. The dates are used as a food when ripe. The sap is drunk when

167. AV; vide SBE, XLII, p. 20.
170. KS, 11.10; TS, 2.4.9.2; MS, 1.10.12; Ved. Pl. p. 662.
171. Chakraberty, C., CHMM, p. 82.
173. TS; 2.4.9.2.
fresh as refrigerant and diuretic, but when fermented, it becomes intoxicating liquor.

**Gṛtāci**\(^{174}\) is the fanciful names of the plants. It is also pronounced **Gṛtacī**. This word is found in the *Ṛg Veda*\(^{175}\) as the name of an **Apsara**. It has been described in the *Atharva Veda* as the synonym of **lākṣā** and the *Satapatha Brāhmaṇa*\(^{176}\) mentioned it as an epithet of **Īdā**.

**Candana** is botanically known as *santalum album* Linn. The earliest allusion to this tree is found in the *Nirukta*\(^{177}\). Later it has been referred to in the *Dharmasūtras*, *Gṛhyaśūtras* and *Śravasūtras*.\(^{178}\) This small evergreen tree grows wild or is cultivated in Karnataka and Coorg. The trees growing on hard rocky, ferruginous soils are richer in oils than those growing on fertile tracts.\(^{179}\) The bark of the tree has been used in India from a very early period and occupies an important place in Hindu ceremonials, religious and social. It was regarded as the most durable because it is not touched by white ants, which destroy so many other varieties of timber.\(^{180}\) The Brāhmaṇs used paste made of its wood for there sectrial marking. It was famous for its mild scent.\(^{181}\) Amulets made of its wood were tied to the body for curing diseases. The oil of its wood is a pale yellowish liquid which acts as an internal antiseptic and as an astringent to the mucous surface, and is principally used in the treatment of gonorrhoea.\(^{182}\) The oil is also extensively used in the manufacture of perfumes. The wood is also highly valued for carving, making ornamental boxes, which is protective from the insects and at the sametime sweet smelling.\(^{183}\)

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174. *SGS*, 1.11.2; *HŚS*, 22.6.6.
175. *ṚV*, 1.167.3; 3.6.1; 4.6.3; *MS*, 2.8.10; *TS*, 4.4.3.2; *ŚB*, 1.3.4.4.
176. *AV*, 10.4.24, Sans. text with Eng. tr. by Chand, D., p. 441-42
177. *ŚB*, 1.8.1.26; 1.3.4.14.
178. *Nirukta*, 11.5.
179. *Āp. DS.*, 1.7.20.12; *SGS*, 1.11.2; *HGS*, 20.3.19; 19.3.24; 19.3.26; *Āp. GS.*, 5.12.8; *Śāṅkhālikīta Dharmo Śūtra*, 12.8; *Viṣṇu Dharmo Śūtra*, 66.2; 79.11.
182. Sharma, P.V., *Drauppada Viśṇu*, Pt. IV, p. 64.
Jāmbila\textsuperscript{184} was a variety of large size of lemon. It is identified with Jambira. Majumdar takes it \textit{citrus aurantium} and \textit{citrus medica}.\textsuperscript{185} \textit{Citrus aurantium} is an evergreen species growing from 20 to 40 feet high, with greenish brown bark elliptical or ovate coriaceous leaves, petiole and fragrant flowers, which yield neroli oil.\textsuperscript{186} It is indigenous in Cochin China, Indian Archipelago and Southern China. It has three principal varieties, \textit{C. bergania}, \textit{C. Vulgaris} and \textit{C. dulcis}.\textsuperscript{187}

\textit{C. medica} is a species indigenous to northern India, resembling \textit{C. aurantium}. But it has larger leaves and indented at the edges. The flowers are slightly purpled on one surface and the fruit is very large. It is used for citron.

\textit{Tilvaka}\textsuperscript{188} (\textit{symplocos racemosa}) was a sacred tree mentioned in the \textit{Satapatha Brāhmaṇa}. It has been said that its wood is as hard and strong as \textit{vajra}.\textsuperscript{189} Sacrificial posts were made of its wood. It was considered inauspicious to construct a funeral pyre.\textsuperscript{190} So, the dead bodies were not to be disposed near this tree. Its use as fire wood has been prohibited in the \textit{Grhya Sūtras}.\textsuperscript{191}

\textit{Tūryanti}\textsuperscript{192} was a wild plant which blossoms at midday. Its flowers and leaves are of yellow and white colour. It was used in \textit{puñsavana}. Its flowers were laid down at the feet of one's wife to secure quick delivery of the child.

\textit{Nalada}\textsuperscript{193} is botanically known as \textit{nardostachys jaṭāmānsī}

\begin{footnotesize}
184. \textit{Ibid.}
185. \textit{MS}, 3.15 3; \textit{KS}, 5.12.1; \textit{VS}, 25.3.
188. \textit{Ibid.}, p. 98.
192. \textit{Āś. GS.}, 2.7.5; \textit{GGS}, 1.6.1.5; \textit{JGS}, 1.1.
\end{footnotesize}
DC. Its name in the different dialects of India is *jañmāśi* (Hindi), *jañmānsī, jañṭilā* (Sanskrit). This is growing at great elevations upto 17,000 ft on the Alpine Himalayas in Nepal, Bhutan and Sikkim. Its flowers are red and knotty, used for garland. It contains medicinal properties. It is used in many diseases of digestive and respiratory organs and in jaundice. It cures leprosy, typhoid symptoms, epilepsy, hysteria and other nervous convulsive ailments, palpitation of the heart, gastric disorders, general and seminal debility. It is also employed mixed with sesaum oil for rubbing on the head as a nerve sedative. It promotes growth and blackness of hair. Menopause disturbances are also improved by its use.

*Nyagrodha* is identified with *vata* tree or banyan tree. Its Latin and botanical names are *ficus indica* and *ficus bengalensis*. It was a sacred tree frequently mentioned in the *Atharva Veda* and later *Sāṁhitās*. The *Aitareya Brāhmaṇa* informs that it grew abundantly in the region of Kurukṣetra. The *Chārdo-gya Upaniṣada* draws an analogy between growing of the seed of *nyagrodha* into a big tree and the manifestation of the universe from Brāhmaṇa who is even smaller in size than the former. The *Satapatha Brāhmaṇa* states that *nyagrodha* was so named due to its downward (nyaga-rodha) growth. It had the characteristic of bending its branches down to the ground and developing new secondary trunks, so that a single tree in course of time

194. AV, 6 102.3, Sans. text with Eng. tr. by Chand, D., p. 262, AB, 3.2.4;
 Šā, 11.4.
196. Āś. ŠS , 6.10; PGS, 4.4.53; VI, Vol. 1, p. 437; Sen, C.B., DVR, p. 76.
198. Ibid.
199. Chakraberty, C., CHMM, pp. 96-97.
200. AV; 4.34.4, 5.5.5; VS, 23.13; MS, 4.4.2; KS, 43.4, 44.1; TS, 7.4.12.1; 
 AB, 7.30.31; ŠB, 5.3.5.13, 8.2.7.3; PGS, 1.14.4; ŠGS, 1.20.1-5; HGS, 3.12.7.3; KGS, 2.1.18; KŠS, 15.5.38, 19.2.19, 21.3.20; Āp. DS. 1.1.2. 
201. AB; 7.30-31.
formed a large grove.\textsuperscript{203} It was noted that it never grows straight but slightly inclines to one side.\textsuperscript{204} Divine origin\textsuperscript{205} has been attributed to it for making this plant a substitute of \textit{Soma} which did not grow in the plains of Northern India. It has been enjoined that a \textit{kšatriya} should not drink the juice prepared of Soma plant. He may however take the same extracted from the airy descending roots of \textit{nyagrodha} together with the fruits of \textit{udumbara}, \textit{aśvattha} and \textit{pākaśa} trees.\textsuperscript{206} The drinking of juice by a \textit{kšatriya} has been justified on the ground that in the human society he occupies the same place as \textit{nyagrodha} among the plants. It is firmly established in the earth, and by means of its descending roots, it expands itself in all directions, and therefore, it is a sign of the great extent of the \textit{kšatra} power over the whole earth.\textsuperscript{207} He also gets a firm footing in his kingdom and his rule cannot be overthrown.

Sacificial posts and utensils made of its wood were used in sacrifices.\textsuperscript{208} Its wood was also prescribed to be used as \textit{samidhā}. In the post-Vedic times, its saplings were planted by the sides of road for the shadow to the travellers.\textsuperscript{209} Its bark is tonic, astringent, cooling, dry and diuretic. Its seeds or fruits are cooling and tonic. Young buds and milky juice are astringent.\textsuperscript{210} It contains medicinal properties. Quality of curing Daha (burns), \textit{Trṣṇa} (thirst) \textit{murcchā} (faintness), \textit{raktapitta} (haemorrhage), kapha and pitta has been described in Ayurveda \textit{Nighāntus}.\textsuperscript{211} It is also useful in diabetes, haemoptysis, gonorrhoea, dysentery, diarrhoea, spermatorrhoea and locally tooth-aches, bruises, fracture and rheumatic pains.\textsuperscript{212}

\begin{itemize}
\item \textsuperscript{203} ŚB; 13.2.7.3.
\item \textsuperscript{204} Ibid., Eng. tr. by Upadhaya, G.P., p. 187.
\item \textsuperscript{205} AB; 7.30.
\item \textsuperscript{206} ŚB; 12.7.1.9, 13 2.7.3.
\item \textsuperscript{207} AB; 7.30; Vide ŚB; 13.2.7 3, 5.3.5.13.
\item \textsuperscript{208} AB; 7.30.
\item \textsuperscript{209} ŚB; 5.3.5.13.
\item \textsuperscript{210} PE; VII, Mookerjee, R.K., \textit{Asoka}, p. 236.
\item \textsuperscript{211} Nadkarni, A.K., \textit{IMM}, Vol. 1, p. 543.
\item \textsuperscript{212} Ibid.
\end{itemize}
Palāśa or Parna is botanically known as butea frondosa. It is a sacred tree with large leaves and beautiful red flowers mentioned in the Vedic literature. This tree is supposed to have sprung up from the feather of falcon imbued with the Soma. It was considered that Palāśa tree grew out of the flesh of Prajāpati, so its juice is red. The leaves of this plant are trifoliate. The middle leaflet is supposed to represent, Viṣṇu, the left Brahmā and the right Śiva. So it has been accorded the status of Brähmaṇa among the plants. The sacrificer, willing to acquire spiritual knowledge and gain luster was advised to establish the sacrificial post made of palāśa wood because it was considered as the womb of all plants. Amulets made of its wood were tied on arm for ensuring health and material prosperity. Kesava and Sāyaṇa havr regarded the wood of Palāśa as universal remedies. Sacrificial utensils such as jars, ladles, lids and cups were made of its wood.

Palāśa the deciduous tree is found throughout India and Burma, extending in the North-West Himalaya as far as Jhelum. It has characteristic of leaves dropping when the flowers came, the top and outer branches stand out like sprays of unbroken scarlet.

Extract of palāśa tree is a powerful astringent. As an astringent drug it is extensively used in India, and to a limited extent in Europe also. It would be interesting to have the timber of this tree treated in the same manner as in the preparation of catechu. The gum may be used both as a dye and tan. The flowers called tesu yield a brilliant but fleeting yellow dye, much used by the natives of India, specially during

214. RV, 10.97.5, 4.2.7.4; AV, 5.5.5, 18.4.5.3; MS, 4.1.4; TS, 3.5.7.1; ŚB, 3.3.4.10; GDS, 1.22, 27.11, 20.21; Āp. ŚS, 7.1.2.17, 8.1.1.1, 9.3.5.6; VI, Vol. 1, pp. 500-1.
215. ŚB; 3.3.4.10, 5.5.1.1, 13.4.4.10.
217. AV; 3.5.8; 18.4.53.
218. TS, 3.5.7.1; MS, 4.1.1; KS, 15.2; TB, 3.7.4.2; PB, 9.5.4.
the Holi festival. This is extracted either by expressing the coloured sap of the fresh flowers, or as a decoction or infusion from the dried flowers. The seeds of this tree yield a small quantity of bright clear oil, this is sometimes used medicinally. The gum, fresh juice, seeds, flowers, leaves and the bark are used as medicine. The gum is an excellent, similar to Catechu, but being mild in operation it is better adopted for children and delicate females. The fresh juice is used in phthisis (yakṣmā) and haemorrhagic affections. It is also employed as an application to ulcers and relaxed sore throat. As an astringent it is given in diarrhoea and dyspepsia. The seeds are however largely used in the treatment of round-worm and urinary diseases. The flowers are astringent, purative, diuretic and aphrodisiac. As a poultice (soft heated mass of e.g. linseed, mustard, spread on a cloth, and put on the skin to relieve pain), they are used to disperse swellings and promote diuresis and the menstrual flow. The leaves are used to disperse boils, and pimples, and are given internally in flatulent colic, worms and piles. The bark is given in conjunction with ginger in snake-bites. The leaves are used as fodder for buffaloes and elephants and regarded as a valuable manure.

The palāśa was much employed by the Hindus in religious ceremonies, particularly in one connected with the blessing of calves to ensure them proving good milkers. The dry twigs termed as Samidhās are used for the feeding of hoam or sacred fire, in the ceremony which goes under the name of nava-grahas, celebrated to secure the pacification of nine planets on the occasion of vāstu śānti. The stem is used as a staff in upana-

221. Ibid., p. 550.
222. Ibid., p. 551.
223. Ibid.
224. Ibid., p. 552; Chakraberty, C., CHMM, p. 132.
225. Ibid., 553.
226. Ibid.
227. Ibid., p. 554.
228. Ibid., p. 555.
The leaves are used as platters on the occasion of sacred thread ceremony.

*Pitūdāru* (pinus longifolia) is probably another name for deodar. It has been mentioned along with *rajjudāla, bilva, khadira* and *palāśa* in connection with sacrificial stakes. Its light and scented wood is highly inflammable. *Sāyaṇa* takes it udumbara tree but others think that it must be devadāru or Khadira tree.

*Ptūt* (*salvadora persica Linn*) was an evergreen plant of same species as the *Śamī*. It is called *Katu, rakṣoghaṇa* and *āyuṣya*. It grew abundantly in the arid tracts of Sind and Persia. Its berries were smaller in size. In Punjab it grows abundantly and its fruits are termed *pilukanā*. A staff (*daṇḍa*) of *pīḷu* tree is used in *upanayana* for all the varṇas except Brāhmaṇa. During the post-Vedic times; *Pāṇini* refers to its berries (*pilukuna*) of which doves fed. Fruits have strong aromatic smell. Pieces of the root are used as tooth brushes. Decoction of its leaves is used in asthma, Cough etc. They are administered in snake bite and as antidote to poisons both in the fresh and the dried state combined with borax.

*Pātudāru* has been identified with *cedrus deodar*. The synonyms of this plant are *putudru*, *pitūdāru*. Its name in the different dialects of India is deodar (Hindi), *devadāru* (Sanskrit), *pinus deodar* (English). Its wood was used for making coffin
at Harappā.\textsuperscript{241} It has been mentioned in the Vedic Samhitās as a sacred tree. Its wood was famous for its sweet smell and lightness. It was easily inflammable.\textsuperscript{242} An amulet made of its wood is employed independently in the nāmakarana.\textsuperscript{243} Sticks made of pūtudru were used for enclosing the uttaravedi.\textsuperscript{244} Yūpas or sacrificial posts were also made of it.

The present distribution of deodar is confined to the hills. It grows in the Afghanistan and Western Himalayas extending upto Nepal. It is usually found at an elevation of 65,000 ft. to 12,000 ft. to sea, levels.\textsuperscript{246} Deodar wood is extremely durable used for railway sleepers and bridges. Its charred remains have been discovered (from a portion of floor showing somewhat a mosaic structure) at Atranjikhera from the NBP were levels.\textsuperscript{246} It contains medicinal properties. Its bark is a good remedy in remittent and intermittent fevers, diarrhoea and dysentery.\textsuperscript{247} Its powder is applied with much benefit in the treatment of ulcers. The oil also enters into mostrumus used by the natives in the treatment of leprosy.\textsuperscript{248}

Praprotha\textsuperscript{249} was a substitute of Soma.

Pramanda\textsuperscript{250} was a sweet scented plant mentioned in the Atharva Veda. It is also pronounced as pramandani. It was used for homadravya. Dārila called it indukā. The Kauśika Sūtra says that the patient who is suffering from constipation and retention of urine is being given the dried powder of pramanda. With

\begin{itemize}
\item[241.] AV, 8.2.28; Eng. tr. by Bloomfield, M., SBE, Vol. XLII, p. 573; TS, 6.2.8; MS, 3.8.5; JB, 2.2.74; Āp. ŚŚ, 7.2.5.5; Baudh. ŚŚ, 4.1; HŚS, 4.2.1; 4.5.17; Kauś. Sūtra, 8.15.58.15.
\item[242.] Nadkarni, A.K., IMM, Vol. 1, p. 295.
\item[243.] Choudhury and Ghosh, Plant Remains from Harappā; Vide A.I, No. 7, p. 17.
\item[244.] ŚB, 13 4.4.5; JB, 2 274.
\item[245.] AV, 8.2.28; Eng. tr. by Bloomfield, M., SBE, Vol. XLII, p. 573.
\item[246.] Sen, C.B., DVR, p. 87.
\item[247.] A.I, No. 10, p. 16.
\item[248.] Chaudhury, K.A., AAFNI, pp. 51-53.
\item[249.] Nadkarni, A.K., IMM, Vol. 1, p. 255.
\end{itemize}
\textit{pātika}.\footnote{251} It cures leprosy, tumour, itching, burn and poison. Hilldebrandt takes it to be a plant having shoots turned downwards (naica sakha) refers to \textit{Soma}.\footnote{252}

\textit{Plakśa}\footnote{258} is once mentioned in the \textit{Atharva Veda} along with \textit{aśvattha}, \textit{dhava}, \textit{parṇa} and \textit{nyagrodha}. Its Latin name is \textit{ficus lacor} or \textit{ficus infectoria}. It is the big tree of large size identified with \textit{pakar} (Hindi) having wavy leaves.\footnote{254} It appears more attractive among plants. It yields small white fruits. This tree is found in North and Eastern India. The Vedic \textit{Saṁhitās} narrate its mythological origin in order to prove its sanctity and purity.\footnote{255} They state that once when gods seized an animal for sacrifice, its sacrificial essence flowed down on a certain place out of which a tree sprang up. As gods beheld it, it was called \textit{prakhya}\footnote{256} (visible), because \textit{plakśa} is the same as \textit{prākhyā}. Sacrificial utensils were made of its wood. The \textit{Aitareya Brāhmaṇa}\footnote{257} maintains the \textit{plakśa} fruit signifies independence and brilliance, so the wood of this tree is used in sacrifices by \textit{kṣatriya} and earns the same virtues for himself. It is also pronounced as \textit{prakṣa}.\footnote{258}

\textit{Badara} has been mentioned in several hymns of later \textit{saṁhitās}.\footnote{259} This plant is botanically known as \textit{zizyphus jujuba}.\footnote{260} Its name in the different dialects of India is ber or baer (Hindi) jujube fruit (English), \textit{badari} or \textit{kola} (Sanskrit).\footnote{261} There are

\begin{thebibliography}
\bibitem{251} \textit{PB}, 8.4.1; \textit{VI}, Vol. 1, p. 37; Sharma, P.V., \textit{Dravyaguna Viñāna}, Pt. IV, p. 99.
\bibitem{252} \textit{AV}, 4.3.7.3; \textit{VI}, Vol. II, p. 38; \textit{Ved. Pl.}, p. 657.
\bibitem{254} Sharma, P.V., \textit{Dravyaguna Viñāna}, Pt. IV, pp. 99-100.
\bibitem{255} \textit{AV}; 5.5.5, \textit{TS}, 3.4.8.4, 7.4.12.1, \textit{MS}, 3.10.2; \textit{ŚB}, 3.8.3.10-12; \textit{TB}, 3.8.19.1; \textit{AB}, 7.32, 8.16; \textit{AĀ}, 5.2.2; \textit{Ved. Pl.}, p. 657.
\bibitem{256} Sharma, R.S., \textit{MCSFAI}, p. 57.
\bibitem{257} \textit{TS}, 8.3.10.2; \textit{ŚB}, 3.8.3.12.
\bibitem{258} \textit{ŚB}; 8.3.10.2.
\bibitem{259} \textit{AB}; 7.32; 8.16.
\bibitem{260} \textit{TS}; 6.3.10.1; \textit{SV}; 1.144; 2.465; \textit{AĀ}; 5.2.2.
\bibitem{261} \textit{VS}; 19.22.90; 21.33-11; \textit{MS}; 3.11.2; \textit{TB}; 18.5.1; 2.6.4.5; \textit{ŚB}; 5.5.4.10; 12 7.1. 3; \textit{JB}; 2.156.5, \textit{KS}; 12.10; \textit{Āp.GS}, 4.11.16; 5.12.8; \textit{Āp. DS}; 1.1.2.38; \textit{PGS}; 4.1.41; 5.2.24.
\end{thebibliography}
three main varieties of jujube fruit which are commonly grown *badara* is middle of them known as wild ber.\(^{262}\) So it was a wild plant although cultivated. Its branches are thorny and leaves are very small. It yielded fruits of different shape and size usually of yellow colour. The remains of this plant have been discovered from Harappā.\(^{263}\) The genus zizyphus is represented which six have been recorded from the North-West region.\(^{264}\) We are not sure to which species the timber from Harappā belongs. All that can be said is that the timber was available locally and was used as a mortar for pounding grains. According to Brandis *lakh* is produced on this tree in Sindh, Punjab and central India.\(^{265}\) The bark is used as dye-stuff, the root is febrifuge in native pharmacy. It is used in bilious affections, diarrhoea, externally boils, abscesses, carbuncles and other ulcers.\(^{266}\) The tree is mainly cultivated for its fruits and it is used in *Śautrakarmanī*. In the Vedic times its fruits were eaten and were also offered as oblations to the Gods.\(^{267}\)

*Bānaparṇī* is the name of a plant. Dārila called it *Śrīrapuṇkha* whereas Keśava called it *māṇikā*\(^{269}\) Sāyaṇa takes *tṛṣṭikā* from *bānaparṇī*. Majumdar\(^{268}\) thinks that it is a water plant, but infact it is *Sarapuṇkha*. Bloomfield has mentioned this plant as a charm of woman against a rival or co-wife.\(^{270}\) This is mentioned as follows: I dig up this plant, of herbs the most potent by whose power rival woman are overcome and husbands are obtained.

264. *Ibid*
266. Chaudhary and Ghosh; *Plant Remains from Harappā*, *AI*, No. 7, p. 10.
267. Strewart and Brandis *Forest Flora of North-West and Central India*; p. 87.
269. *SB*; 12.7.12; *VS*; 21.30-31.
270. *AV*; 3 18.1; *Kauś. Sūtra*; 36.19.36.38.
Bilva\textsuperscript{271} or Vilva is a variety of large thorny tree with trifoliolate leaves. The botanical name of this tree is \textit{aegle marmelos corn}. The synonyms of bilva tree are \textit{crataeva marmelos}, \textit{crataeva religiosa} etc.\textsuperscript{272} Its name in the different dialects of India is Bel, Si-phala, Sripahal (Hindi), bel, Vilva (Bengali), Sripal, \textit{bilva}. malura (Sanskrit).\textsuperscript{273} Its fruits are of two varieties, a small and wild variety and a large cultivated variety. The flowers are greenish white and sweet scented. This tree is cultivated all over India. It is wild in Sub-Himalayan forests from the Jhelum, eastward, central and South India in Burma.\textsuperscript{274}

The earliest allusion to the bilva tree is found in the \textit{Atharva Veda}.\textsuperscript{275} It was considered to be a sacred tree. Its fruit is called \textit{Sripahal}, because it sprang from the milk of \textit{Śrī}, the Goddess of abundance, who bestowed it to mankind at the request of \textit{Fowarra}, whence he alone wears a chaplet of \textit{bilva} flowers.\textsuperscript{276} The green leaves and fruits were offered to Śiva. Birdwood\textsuperscript{277} says (in his article ‘Industrial Arts of India) it is sacred to the \textit{Tṛṇūrti}, being a representative of Śiva. It is also sacred to \textit{Pārvti}, and is the \textit{Vilva-rupra}, nine forms of \textit{Kāli}. Sacrificial, posts\textsuperscript{278} were also made of its wood. Śāṅkhāyana \textit{Āranyaka}\textsuperscript{279} mentions that amulets made of its wood were tied on arms for removing the harmful effects caused by evil spirits. Its staff was also used in \textit{upanayana ceremony}.\textsuperscript{280} The \textit{bilva} tree was the symbol of riches and fertility, because it yielded fruits every year without fail. The sacrificer desiring prosperity had to erect the post made of its wood on the sacrificial ground.\textsuperscript{281}

\begin{itemize}
\item \textsuperscript{271} Sharma, P.V.; \textit{Drovyaguna Vijnāna}; pt. IV, p. 105, \textit{Ved. Pl.}, p. 664.
\item \textsuperscript{272} \textit{AV}; 3.18.1; Eng. tr. by Bloomfield, M; \textit{SBE}, Vol. XLII. p. 107.
\item \textsuperscript{273} \textit{AV}; 20 136.15; \textit{MS}; 3.9.3; \textit{ŚB}; 1.13.20; 13'4.4.5; \textit{AB}; 2.1.; \textit{TB}; 3.8.19; \textit{JB}; 2.274: \textit{KGS}; 1.14.18; 2.8.2; 2.9.1; Chakraberty, C., \textit{CHMM}; p.59, \textit{Ved. Pl}; p. 649.
\item \textsuperscript{275} \textit{Ibid}.
\item \textsuperscript{276} \textit{Ibid}; p. 117, Nadkarni, A.K; \textit{IMM}: Vol. 1, p. 45.
\item \textsuperscript{277} \textit{AV}; 29.136.15.
\item \textsuperscript{279} \textit{Ibid}.
\item \textsuperscript{280} \textit{TS}; 2.1.8.1-2; \textit{ŚB}; 1.3.3.20; 13.4.4.8.
\item \textsuperscript{281} \textit{SA}; 12.20.
\end{itemize}
Srauta Sūtras and the Grhya Sūtras prescribed the use of its wood in many ways and forms for several rituals.\(^{281}\)

Besides sacrificial uses it contains medicinal properties. The different forms of leaves, fruits and roots are used in several diseases. The unripe fruit is regarded as astringent, digestive and stomachic.\(^{283}\) It is also prescribed in diarrhoea and dysentery with debility of the mucous membrane often proving effectual in chronic cases after all other medicines have failed.\(^{284}\) The ripe fruit is sweet, aromatic and cooling. Its sherbet is pleasantly laxative and good simple cure for dyspepsia and is useful in constipation. The dried ripe pulp is mildly astringent and may be used in dysentery. The root bark is made into a decoction which is used in the treatment of intermittent fever. It is one of the ingredients in the dusamūla\(^{285}\) of ten roots used in Āyurveda. The leaves are made into poultice, used in the treatment of ophthalmia. The fruits ripe in summer which are yellowish and very tasteful.\(^{286}\) It is used as food and eaten by all classes. The root is said to be an antidote against poisonous snake-bite. The gum is obtained from its stem and seeds.\(^{287}\) The astringent rind of the ripe fruit is used in dyeing and tanning.

Burbura\(^{288}\) or Babbūla is identified with babūl (Hindi). It was also known as Kikkara or Kikar in the languages of northern India but it is not found in the later Vedic texts.\(^{289}\) It is a variety of wild plants with thorns. This plant is botanically known as acacia arbica. The synonyms of the plant babul is mimosa arabica, acacia vera, acacia nilotica etc.\(^{290}\) The babul was the akakia of the ancient Greeks and its virtues were

282 Sharma, P.V.; Dravyaguna Vijnāna. pt. IV, p. 107.
283. AB; 2.1.
284. KŚŚ; 2.8-1; KGS; 1.4.18; 2.8.2; 2.9.1;
285. Chakraberty, C; CHMM; p. 59.
288. ŠB; 13 4.4.8; Eng. tr. by Eggeling, J., SBE; Vol. XLIV. p. 374.
290. Nighante; 1.12.
doubtless ultimately made known to India through the Arabs.\textsuperscript{291} It appears that Indians learnt the medicinal use of the babūl gum from the Greeks through the Arabs sometime after 11th or 12th century A.D. Its remains have been discovered from the OCP ware levels at Atranjikhera.\textsuperscript{292} It is indigenous to Sind, Rajasthan, Gujarat, Uttar Pradesh, Madhya Pradesh and Maharashtra. At Atranjikhera it was a local forest product. At this place, from the same levels, dry pods of babūl have been discovered. Perhaps these were used for feeding the animals. It is also possible that a few dry pods attached to babūl true which was felled, somehow found their way into the floor of the shelter.\textsuperscript{293}

Even now, this tree is common all over India in dry and sandy localities, plentiful in Western Peninsula, the Deccan Coromandal Coast. It prefers a dry to a moist soil and seems to avoid the influence of the sea. The tree is never leafless, but the fresh foliage appears between February to April.\textsuperscript{294} It is of rapid growth and requires no water and specially in black cotton soil, where other trees are rarely met with.\textsuperscript{295}

The gum extracted from babūl in India is used by the Calico printer and for other industrial purposes. In times of scarcity it also constitutes an important article of food.\textsuperscript{296} The bark is largely used by the Indian tanners in preparation of leather, and also as a dye. It is a valuable astringent medicine, extensively used by the natives, and in Indian European medical practice as substitute for oak bark. It is also used to flavour native spirits.\textsuperscript{297}

The leaves are used as a tan and dye. The green pods

with tender shoots and leaves are given as fodder to cattle, sheep, goats and camels. The leaves are specially valuable for the purpose during a season of drought when other fodders fail. The timber is highly valued because of its hardness and durability. It is used extensively for wheels, well curbs, sugar and oil presses, rice pounders, plough shares, agricultural implements, and tool handles. In fact it is used for all purposes for which absent hard wood is required. In Sind it is largely used for boat-building rafters and for fuel. It is one of the most valuable timbers for tent-pees. The bark of the root is used to flavour native spirits and to assist the fermentation of the sugar. The bark is also stated to be used as a substitute for soap. The young throngy twigs are universally used for temporary dry fences, to protect certain crops and large bundles of boughs are used by the fishermen as decoys.

Besides economic value of this tree as gum, food, fodder and timber it also has medicinal properties. The gum is largely used in the form of a mucilage in diarrhoea and dysentery. Gum acacia is also administered to recently delivered woman as a tonic. Some native hakims say the gum is very useful in diabetes mellitus, as the gum is not converted into sugar. The bark and seeds burnt and powdered are used as a tooth-powder. An infusion or decoction of bark is used as gargle for sore-throat and stomatitics. The juice of the tender leaves is dropped into the eye for epithora and conjunctivities. The bark of the babul has been found a valuable remedy in prolapsus utri, as an external application in laucorrhoea, and has been recommended as a poultice for ulcers attended with sanious discharge. The extract of acacia is considered to be cold and dry, astringent, styptic, and tonic and is used inter-

298. Ibid. pp. 18-19.
300. Ibid., p. 25.
301. Ibid., p. 19.
302. Ibid., p. 25.
303. Ibid.
304. Ibid.
nally and externally in relaxed conditions of the mucous membranes. It is also used to burns and scalds. In short, it is used in all cases in which an astringent is applicable. Thus it appears that babūl has been tremendously useful in the daily life of the people.

*Manjiṣṭha* was a climbing plant of red colour, growing in the North-West Himalayas, Nilgiris and other hilly districts of India. Its botanical term is *rubia cordifolia Linn.* Its barks and flowers used for extracting juice and for making red colour. The *kṣatriyas* had to put on clothes of manjiṣṭha colour on the occasion of their sacred thread ceremony. It contains medicinal properties and is still used for preparing medicines. Dried root was much used in dropsy, paralysis, jaundice, amenorrhoea and visceral obstructions and externally ulcers and other skin diseases. The drug is used in cobra-bite and scorpion-sting. Madder colours range from brown, through yellow, rose-red to deep purple and are much used in dyeing and fine-arts.

*Maduga* or *madugha* was a sweet plant. It was also pronounced as *madhu-dugha* in the Rg. Veda. Its literal meaning is honey yielding. This plant is botanically known as *glycyrrhiza glabra.* Its name in the different dialect of India is *vaṣṭi madhūka* (Sanskrit) madhūka, *Jyestimadhūka* (Bengali), licorice (English), Jethi-madha (Hindi). It is commonly found in Arabia, Persian gulf, Afghanistan, Turkistan, Asia minor, Siberia, etc. But the root is cultivated in the Punjab, Sub-Himalayan tracts from the Chenab eastward Sind and Peshawar Valleys, Burma and Andaman Islands. Dried roots

306. Ibid; p. 23.
307. Ibid.
308. Ibid; p. 24
309. AA; 3.2.4.10; ŚA; 8.7; ŚGS; 1.11.2; ASGS; 1.19.9; KGS, 1.1.9; GDS; 1.21; HSS; 26.1.73.
311. ŚGS; 1.23.1.
313. Chakraberty, C.; *CHMM,* p. 147.
314. AV; 1.34.4; 6.102.3; VI; Vol. II, p. 122.
are found in all the bazars of India. Amulets made of its wood was tied on the arms of pregnant woman for the safety of baby. It was considered as having medicinal properties and its sweet juice was supposed to nourish the baby in the mother’s womb. It is used in sore throats, colds, hoarseness, catarrh, coughs, bronchial affections, bilious fevers, influenza, leucorrhoea and other uterine complaints. It is also much employed to mask the taste of bitter or acrid drugs.

Madhulā was a plant which was used for removing mosquitoes and curing victims of serpent bites. According to Śāyaṇa it is the synonym of Madugha.

Madhūka (bassia latifolia) was a tree of large size. Its synonym is madhuca indica. It is identified with mahuva or mahuya in Hindi. This tree is 40 or 50 feet growing throughout central India. The flowers contain a large amount of saccharine matter and are edible. An intoxicating drink is also made from its flowers. The Kernels yield a concrete oil which is used for making soap. The oil cake is used for poisoning fish and as an emetic.

Rajjudāla is the name of a tree mentioned in the Śata-patha Brāhmaṇa. Sacrificial posts were made of its wood. Some commentators take it meaning śleṣmātaka which is identified with cordia myxa or cordia latifolia. Its fruits are śiṣnavaṇa and śleṣma śukrayaṇa. In Pañcaviṃśa Brāhmaṇa it has been read as

315. RV; 6.70; 1.5.
317. Ibid., p. 583.
318. Sharma, P.V., Dravyaguna Viṣṇu, Pt. IV, p. 112.
320. Chakraberty, C., CHMM; p. 150.
321. RV; 1.191.10-13; MS; 4.9.1; TA; 4.2.5; 5.2.13. AV; 5.15-1-11.
322. AV; 1.34.5; Ved. Pl., p. 654.
323. Chakraberty, C., CHMM; pp. 148-149; Chakravarty, T., Food and Drink in Ancient Bengal. p. 57.
324. Ibid. p. 149.
Nicūḍāra. Sharma has identified it with *olax scandens* and distinguished *rajjudāla* from *śleṣmātaku*. It is found in Western India from Punjab to whole of warmer parts of India.

Rohitaka was considered to be a sacred tree. Its wood was used for making sacrificial posts. In sacred thread currency (*упанаяṇа*) the Brahmaśārin had to hold a stick made of its stem. It appears that it grew abundantly in Kurukṣetra and the place Rohitaka in Haryana was named after it. Majumdar takes *aphanamixis polystachia* and Sharma takes *tecomella undulata*. It is found in the Sub-Himalayan tract from Rapti, and Sikkim up to 6000 ft.

Varana (crataeva roxburghii) was a sacred plant which has been frequently mentioned in the *Athrava Veda* and onward. Sacrificial implements were made of its wood. Amulets made of its wood were tied to cure tuberculosis. It is found all over India. It grew wild abundantly on the banks of the river Varṇā-vaṭi; which got its names after it. It contains medicinal properties also. Varna through its intense fragrance helps curing consumption. It is the name of a medicine also, which is called varuna, varana and urna. It is bitter in taste, hot in nature and purifies blood and removes vāt. It also removes poison. Thus it is supposed to possess wonderous virtues.
Vanaspati (Plants in General)

Vikaṅkata\textsuperscript{336} or vikaṅtikā (flacourtia sapida) was a sacred tree. It was first offered to Agni in Soma sacrifices. The Śatapatha Brāhmaṇa\textsuperscript{337} mentions its origin as such: when Prajāpati performed the first offering, a Vikaṅkata tree sprang forth from that place where after offering, he cleansed (his hands). That Vikaṅkata is then become first offering. As its name indicates it had no thorns and was very soft\textsuperscript{338} Yāpas, Samidhā and several utensils of its wood were used in sacrifices. It has been also mentioned in the Śatapatha Brāhmaṇa that the srūvā or dipping spoon may be of palāśa wood or vikaṅkata wood.\textsuperscript{339} A sacrificial pot called Urddhwapātra was made specially of its wood, which was used for holding juice from which offerings were made to dieties.\textsuperscript{340}

Vidāri\textsuperscript{341} (batatas paniculata) has not been mentioned in the Vedic literature. The Kauśika Sūtra mentions that mixture of rice and barley with the leaves of palāśa and vidāri is used in puṁsavana kurman.\textsuperscript{342} In this practice the mixture is put up on the right nostril of the women with his right thumb. It is indigenous to the hotter part of India. It is used as medicinal ingredients. Its stalk and powdered root is given to increase the secretion of milk.\textsuperscript{343} It is given to children in case of debility and went of digestive power.\textsuperscript{344} The drug is also used in scorpion-sting.\textsuperscript{345}

Vibhitaka\textsuperscript{346} or Vibhidaka (terminalia bellerica) was a tree of large size. It has been mentioned in the Rg. Veda\textsuperscript{347} and since then it was used for preparing gambling dices. Its name

336. ŚB; 13.8.4.1; 13.8.4.8.
337. AV; 4.7.1.
338 Ibid., Sans. text with Eng. tr. by Chand, D., p. 107, 253.
339. Ibid.
340. MS, 3.1.9; TĀ, 3.4.7.3; KS, 19.10, 21.9, 27.8; ŚB, 1.3.3.20, 5.2.4.18; 6.6.3.1, 9.2.3.39, 14.1.2.5, 14.1.3.26; Ved. Pl., p. 665.
341. ŚB, 6.6.3.1; Vide Upadhyaya, G.P., p. 199.
342. Ibid., 14.1.2.5.
343. Ibid., 5.2.4.18.
344. Āś. ŚŚ., 12.2.9.6; KŚ, 9.2.14.
345. Śāṅkhalikhita Dharmasūtra, 220.
346. Kauś. Śūtra, 35.4.
in the different dialects of India is Vibhitaka, Vibhitaki, Bahira (Sans.) Bhaira (Hindi).\textsuperscript{348} It grew wild and common in Indian forests and plains. Akṣas (dices) were made of its nuts. Its fruits were termed by the same name (akṣa). Although the word akṣa is employed from the early times in the sense of gambling games, but we do not know in what manner the dice were marked in those days. Akṣa played an important role in the royal consecration.\textsuperscript{349} Among the chiefmen of the realm whose loyalty was confirmed by a special ceremony at the consecration of the king was the akṣāvāpa\textsuperscript{350} (thrower of nuts of dice) evidently the organiser of the royal gambling parties. Akṣa also denoted the axle of a chariot. On this basis it has been suggested that the wood of vibhitaka might have been commonly used for making it. Sometimes, the term akṣa denoted the Vibhitadaka tree.\textsuperscript{351} It was also used for sacrificial firewood.\textsuperscript{352} Amulets made of its wood are used for growth of hair.\textsuperscript{353} It contains medicinal properties also. Its fruits are useful in coughs, hoarseness, eye diseases, sore throat, night pollution, worms, dyspepsia dropsy piles and diarrhoea.\textsuperscript{354} It is a constitute of triphala which is prescribed in liver and gastro intestinal tract and serveral other diseases.\textsuperscript{355}

Śami\textsuperscript{356} was considered to be sacred tree. Its Latin name is prosopis spicigera and mimosa suma.\textsuperscript{357} Its wood was very hard so the stick made of it was fitted into a hole in a lower block and was twirled like a carpenter’s brace in order to produce sacrificial fire by friction.\textsuperscript{358} On account of this it was supposed to contain fire in its womb. But the Satapatha Brāh-
Vanaspati (Plants in General)

maṇa states that its wood flames very slowly, and when placed into fire, it decreases its flames. It is named as Śamī due to its peaceful or pacifier qualities. The Atharva Veda has mentioned its several characteristics. It having broad leaves and producing intoxication. It is injurious to hair. Its fruits were termed as Śamidhāṇya.

The Śamī tree is commonly found in the Punjab, Rajasthan, Gujarat, Sind and Afghanistan. Its leaves branches and wood were used for sacrificial purposes. Samidhā, saṅkku and sravā were made of it. Its leaves and wood were also used for curing several ailments. It is given in saṅke-poison with honey. Amulets made of its wood were tied in pūṃsavana for obtaining a male child. Its extracted juice is given to the pregnant woman with honey to ensure the birth of son. Its barks and leaves are used in tanning.

Śālmalī (Bombax malabaricum) has been mentioned in the several hymns of the Rg. Veda. Bridal chariot was made of its wood and decorated with its flowers. Its fruit is regarded as poisonous. It is interesting to note that still it is used for tipping arrows. It is said to be tallest among the trees, and rapid growing. The Grhya Śūtras explain that it should be used as Samidhā.

The Śālmalī tree is found throughout the hotter forests of India and Burma. It is indigenous to Bengal and the East

359. Ibid.
360. AV, 6.11.1, 6.30.2-3; TS, 5.1.96; 4.7.4; KS, 36.6; ŚB, 2.5.2.12, 9.2.3.37, 11.5 1.15; VI, Vol. II, p. 354.
363. ŚB; 2.1.4.5, 11.5.1.13, 13.8.4.1.
364. AV, 6.30.2-3; ŚB, 1.1.1.10; VI, Vol. II, p. 354.
367. Ibid.
368. AV, 6.11.1; Eng tr. by Bloomfield, M., SBE, Vol. XLII, p. 97.
Indies. It is identified with Silk Cotton tree and Vernacular —Śemal. Its leaves are dark green and flowers are red and much beautiful. Its flower is termed as Śimbala. This tree is known as Śālmalī because it is easy to pierce its wood. It is covered with prickling thorns. It is also called päcāparṇī.

The timber of Śālmalī is very light and soft. It is not durable except under water. It is used for planking, packing cases and toys, and scabbards, fishing floats, coffins and the linings of well. Its flowers produce silk Cotton, which is extensively used in stuffing cushions, mattress and in the manufacture of glossy fabrics. The gum or dried juice is used as an aphrodisiac. It is used in diarrhoea, dysentery and menorrhagia. It is given to children as laxative. Dry young fruits are beneficial in calculous affections and chronic inflammation and ulceration of the bladder and kidneys. The bark is used externally in inflammations and cutaneous eruptions in the form of paste. The drug is also used in snake-bite.

Śāka (tectona grandis) tree has been mentioned in the Gṛhya Sūtras and the Dharma Sūtras. Its fruits and leaves are described in the Kauśika Sūtra. Its fruits are used in ophthamia. It grows in central India, Konkan, Western Deccan Peninsula, South India and Burma.

Śāla (shorea robusta) has been mentioned in the Gṛhya Sutras. This tree is tall and very fine. It is common in the Sub-Himalayan regions and the forests of Bengal. Its wood

370. RV, 7.50.3, 10.85.20; KS, 44.1; TS, 7.4.12.1; VS, 23.13; ŚB, 13.2.7.4; PB, 9.4.11; VI, Vol. II, pp. 336, 380; Ved. Pl., p. 659.
372. TS, 7.4.12.1; VS, 23.13.
373. PGS, 1.21; GGS, 1.5.15; JGS, 1.1.
375. RV, 3.53.22.
is very hard and used for making houses and furnitures. Its remains have been reported from the Black and Red ware levels at Atranjikhera.\textsuperscript{381} It contains medicinal properties. It is used in ulcers and some other skin diseases.\textsuperscript{382}

Śikhāṅḍi\textsuperscript{383} has been mentioned in the Atharva Veda in association with trees of larger size (mahāvṛkṣa), such as aśvattha and nyagrodha. It has not been identified.

Śiṁśāpā (dalbergia Sisu) has been frequently referred to in the Vedic literatures.\textsuperscript{384} Its leaves are very small and branches have luxurious growth on its tall body. It is an important tree of deciduous forest where it predominates and makes its way along with Saccharum munja in the Western Sub-Himalayan tract.\textsuperscript{385} It grew in the Western Himalayas at a height of 4000 ft. It also grew in Gandhara, Baluchistan, Sind and Punjab. Its hard and durable wood was used for making houses, furniture and agricultural implements. Owing to its fine seasoning and standing, qualities, it is extensively used for boat building, cart, carriages, and specially for furniture.\textsuperscript{386} It is highly esteemed for all purposes where strength and elasticity are required. For felloes and Naves of Wheel and Carved work of every description for framings of carriages and similar work, it is unsurpassed by any other wood. The Harappans had knowledge of this tree. An interesting representation of its leaf has been reported from Harappa.\textsuperscript{387} Remains of black Sisso (dalbergia latifolia) also have been reported from the same site where its wood was used for making coffin.\textsuperscript{388} The remains of sisso have also been discovered from Hastināpura\textsuperscript{389} (pds. II-III) and

\textsuperscript{881} Āś. GS., 2.7.5; Baudh. DS, 1.10.9; Kaūṣ. Sūtra, 30.4.
\textsuperscript{882} Nadkarni, A.K., IMM, Vol. 1, p. 1197.
\textsuperscript{883} PGS, 1.21; 2.4.
\textsuperscript{884} Nadkarni, A.K., IMM, Vol. 1, p. 1132; Chakraberty, C. CHMM, p. 177.
\textsuperscript{885} Chaudhary, K.A., AAFNI, p. 36.
\textsuperscript{886} Nadkarni, A.K., IMM, Vol. 1, p. 1132.
\textsuperscript{887} AV, 4.37.4; Sans. text with Eng. tr. by Chand, D., p. 148.
\textsuperscript{888} RV, 3.53.19; AV, 20.129.7; Kaūṣ. Sūtra, 8.16; 34.1.
\textsuperscript{889} AI, Nos. 10 & 11, p. 134.
Atranjikhera from the upper and middle Gangetic Valley. It appears that India is the place of its origin from where it spread to the West. The inscriptions of Darius I mention that the wood which was brought from Gandhara and Karman were used for building his palace.

The Akkadian Yakā was termst misma-Kon-no which was a durable wood. It was a very tall tree and its wood was used for different purposes. Although Darius had imported it from Gandhāra, it is known that this tree grew in Babylonia and it was planted by Senachercib in Assyria. Mis-ma-Kon-no meant the tree of Makan of Makan which was the ancient name of Makran Coast in Baluchistan. Sisso still grows in that region and is termed jug or jux. The Akkadian term Yakā appears to have been the corrupt form of jux. It is the Sisso of India, its Sanskrit term being Śimśapā. This tree was widely in the Near East and the Noah’s arch was also built of its wood. Trade in this wood from India to Iran continued even up to the early centuries of Christian era as its logs were exported from Bhārukaccha to Jarn.

There are hymns in the Atharva Veda where Śimśapā has been designated to chase away demons and diseases. The Sisso wood is employed in a charm for preventing miscarriage. It is useful in leprosy, boils, eruptions. It is also used in allaying vomiting. The roots are said to be so astringent that they are neither eaten by rats nor ants. The leaves and saw dust in decoction are esteemed in eruptive and special diseases. The oil is also applied externally in cutaneous affections.

390. RV, 3.15.9; AV, 20.129.7. PGS, 4.2.80.
392. AI, No. 7, p. 8.
393. AI, Nos. 10 & 11, pp. 133-34.
394. Ibid.
398. Roy, B.P., LVE, pp. 191-92
Śyenahṛta. The earliest allusion to this plant is found in the Śatapatha Brāhmaṇa. It is used as a substitute of Soma and red phālguna. If brown flowering (Phalgunas) was not available, it could be replaced by Śyenahṛta plant. Śyenahṛta, literally, means “carried away by the falcon”. The Śatapatha Brāhmaṇa narrated its mythological origin. For when Gāyatri flew up for Soma and she was bringing him, a spring of Soma fell from him and that became the Śyenahṛta plant. Therefore he may press the Śyenahṛta plant.

Sidhraka was a tree of very hard wood. It was termed as Sūrvṛka. Its timber was used for making furniture. The Śrauta Sūtras explain that muśala where made of its wood.

Suvarcalā plant is found only in the Dharmasūtras. It is treated as prohibited vegetables in the Viṣṇu Dharmasūtra. The Vāśiṣṭha Dharmasūtra prescribes Suvarcalā, Śaṅkhapuṣpī and Brāhmī to drink with milk for āhāriṇe or meal purification. Dārila says Suvarcalā as famous as trśmadhyā tree. Still it has not been identified.

Spandana was a tree of which wood chariot was made.

Sphūrjaka, tree is first mentioned in the Śatapatha Brāhmaṇa. This tree should not be in the burial place. It is also described in the pittṛmedha prakarana. This tree is botanically known as diospyros penigrina or diospyros embryotreis. The synonyms of Sphūrjaka are dispysros glutinosa, diospyros tomentosa etc. Its name in the different dialects of India are tin-
dūka (Sanskrit), gaba (Bengali), tendu (Hindi). This tree is commonly cultivated throughout India and specially in Bengal. The wood is hard and heavy and much esteemed for carving. It contains medicinal properties also. The ripe fruit is edible. It is astringent and given in diarrhoea.\textsuperscript{410} The bark is used in intermittent fevers in the form of infusion. A paste made from its bark is applied to boils and tumours.\textsuperscript{411} The juice of unripe fruit is given in chronic diarrhoea and dysentery. It is also used in haemorrhages from the internal organs.\textsuperscript{412} When it is applied to fresh wounds it acts as styptic by checking the bleeding.

Haridru\textsuperscript{413} has been identified with \textit{pinus deodara}. It is not found in the Vedic Samhitās. It occurs as one of the trees which should not be near the burial grounds. \textit{Hāridrava}\textsuperscript{414} is synonym of it. Macdonell and Keith take it deodāru but Sharma thinks that it is \textit{adina cordifolia}.\textsuperscript{415}

\textit{Hiranyaparṇa}\textsuperscript{416} was a plant of golden leaves or it shines like gold. It was used for sacrificial purposes.

\textsuperscript{410} Ibid., p. 114.
\textsuperscript{412} Ibid.
\textsuperscript{413} \textit{ŚB}, 13.8.1-16.
\textsuperscript{414} \textit{RV}, 1.50.12.
\textsuperscript{415} Sharma, P.V., \textit{Dravyaguna Viṣṇāna}, Pt. IV, p. 169.
\textsuperscript{416} \textit{MS}, 3.11.5, 4.13.7; \textit{TB}, 2.6.17.7, 3.6.11.2; \textit{Nṛukta}, 8.19; Sharma, P.V., \textit{Dravyaguna Viṣṇāna}, Pt. IV, p. 169.
Lata\(^1\) as its English rendering creepers indicates that it cannot be as hard as some plants and trees. They are naturally soft and usually grew in the rainy season. The creepers were of three kinds (1) *Vratati* i.e. those which climbed the tree (ii) *Alashalā* i.e. those which spread on the ground, e.g. *Urvāru*. Its fruit *Urvāruka* is edible and it covers the ground. The animals like to eat the creeper. (iii) *Pratānvati* i.e. one which spreads on the surface of water e.g. *Puṇḍarika* (Kamala) etc. It was used for fodder, vegetable, decorative purposes and medicines. Being soft and green it must have been liked by the animals as fodder.

*Amūla* or *Amūla\(^2\)* is identified with methonica superba. Its literal meaning is a plant without root. It was used for poisoning arrows. Some scholars think that it is *amarvela* or *kalihārī*.\(^3\) Majumdar considers it as *Cascata superba*\(^4\) which is common in the Indus plain and used for the same purpose. Bloomfield\(^5\) takes it as movable property.

Alaśāla\(^6\) is mentioned only once in the *Athrava Veda* which indicates a grain crepper.

**Alābu:** The earliest allusion to this plant is found in the *Athrava Veda*. Its botanical term is *cucurbita lagenaria*. The synonyms of this plant are *Lagenaria Vulgaris* and *L. Siceraria*.\(^8\) Its name in the different dialects of India is layu, (Bengali), tombi tumba (Hindi), bottle gourd (English). It is indigenous in India. The pulp of the fruit is laxative, and is used by the poor classes as a vegetable food. The leaves mixed with sugar is prescribed in jaundice and the seeds are diuretic.\(^9\) It is also used as poison particularly in snake poisons.\(^10\) Vessels were made of its dried fruits. Still its vessels are used by Sanyasi.

**Avakā** (blyxa octandra) was a water plant frequently mentioned in the *Athrava Veda* as well as later *Samhītās* and *Brāhmaṇas*.\(^11\) It grew abundantly in the rainy season and hence it was a symbol of water and treated as cold and suppressor of Agni. It is a grassy plant growing in marshy land. It spreads on the surface of water. Its leaves are swordshaped.\(^12\) Weber identifies it with lotus flower.\(^13\) Its later name is *Saviāla* which is identical with Sewāra (Hindi) or Śipāla.\(^14\) A tank or lake overgrown with Śipāla is termed Sipalya.\(^15\) It was symbolic of durability and growth and hence it was referred to be used in certain sacrifices for ensuring longevity and prosperity of the sacrificer. It has also medicinal value. In one of the hymns of

11. *AV*, 8.7.9; 4.37.8-10; *TS*, 4.6.1.1, 5.4.2.1; *MS*, 2.10.1; *SB*, 7.5.1.11, 8.3.2.5, 9.1.2.20-22; *Āś. GS.*, 2.8; 4.4.
the *Atharva Veda* it has been said that this herb (avaka) can cure the disease of *Yaksma*.\(^{18}\) Gandharvas also eat it

\(\text{Āla}\)\(^{17}\) appears to mean weed which forms a part of three other words denoting grass creepers. In the *Rg. Veda* it is found in the sense of poison.\(^{18}\) Dārila takes it *godhūmavyādhiḥ*, and Keśava *Yavogodhūmvalli*. Majumdar takes it weed of cornfield.\(^{19}\)

*Urvāru*\(^{20}\) (*cucumis sativus*) was a climbing plant whose fruit was also termed as the *urvāruka*. Its name in the different dialects of India is cucumber (English), Khira (Hindi), Sasa (Bengali), *trapusa* (Sanskrit).\(^{21}\) Its fruit is highly esteemed as a garden vegetable. Its young fruit is eaten and pulp is regarded emollient. Its seeds are also useful and it is used as an aphrodisiac.\(^{22}\) In the Vedic texts it has been a usual simile to denote the liberation of man from death as to *urvāruka* fruit from its stalk.\(^{23}\)

*Kyāmbu*\(^{24}\) was a variety of water plant which grew on the place where the dead bodies were burned. Its synonyms are *Kiyāmbu Sāṇḍadūrva* and *Pākdūrva*. Sāyaṇa called it *paripaka-kvadūrva*. Literally it means having some water.\(^{25}\) It was considered as an inauspicious creeper.

*Kumuda*\(^{26}\) was a water creeper first mentioned in the *Atharva Veda* with other plants. Its botanical name is *nymphaea lotus*. It is found in three varieties, white, red and blue. It is also known such as water lily (N. alba), *raktotpala* (N. rubra)

18. *RV*, 6.76.15.
20. *RV*, 7.59.12; *MS*, 1.10.4; *VS*, 3.60; *AV*, 6.14.2; *PB*, 9.2.
22. *Ibid*.
25. *TĀ*, 6.4.1.2; *KGS*, 5.5.5; *HŚS*, 15.4.21.
Bhumipāsa\textsuperscript{52} was an insignificant creeper which should not be near a burial ground. Its literal meaning is earth-net. Some scholars used its Latin name \textit{onomis arvensis} or \textit{spinosa}.\textsuperscript{53} Yet it has not been identified.

Libuja\textsuperscript{54} is mentioned in the \textit{Rg. Veda} and the \textit{Atharva Veda}. Later texts denoted a creeper plant that climb trees.

Vetasa\textsuperscript{55} (calamus rotang) was a water plant of the group of galamus rotang or a similar reed. It was of golden colour so it was known as \textit{hīranyā vetasa}.\textsuperscript{66} It was also called \textit{apsuja}\textsuperscript{67} due to its growth in water. It was used in sacrifices and was symbolic of elasticity and durability. Chairs, baskets sacrificial thrones and shafts of bows were made of it.\textsuperscript{58} Its young shoots are eaten as a bitter tonic, vegetable and the pulp of the ripe fruit surrounding the seeds are used as an astringent.\textsuperscript{69}

Madāvati was mentioned in the \textit{Atharva Veda}\textsuperscript{60} as an intoxicating plant. It is a kind of creeper which is identified with grape wine. Its botanical name is \textit{vitis vinifera}.\textsuperscript{61} Its name in the different dialects of India is \textit{drāksā} (Sanskrit), angura (Hindi), Grape (English). Its leaves and tendrils contain glucose and cane sugar.\textsuperscript{62} The juice extracted from them is cooling astringent, and has been used in diarrhoea and haemorrhages.\textsuperscript{63}

\textsuperscript{53} \textit{RV}, 10.10.13-14; \textit{AV}, 6.8.1, 18.1.15-16; Eng. tr. by Griffith, R.T.H.; \textit{PB}, 12.13.11; \textit{Nirukta}, 6.28; 11.34.
\textsuperscript{54} \textit{RV}, 4.58.5; \textit{AV}, 10.7.41, 18.3.5; \textit{VS}, 17.6; \textit{MS}, 3.3.6, 2.7.17; \textit{KS}, 16.16 21.7; \textit{ŚB}, 9.12.20-22; 12.8.3.5; \textit{KGS}, 4.1.9; \textit{KSŚ}, 19.2.10; \textit{Nirukta}, 3.21.
\textsuperscript{55} \textit{TS}, 5.3.12.2.
\textsuperscript{56} Ibid.
\textsuperscript{57} \textit{ŚB}, 12 8.3.5; \textit{TS}, 5.3.12.2.
\textsuperscript{58} Chakraberty, C., \textit{CHMM}, p. 173.
\textsuperscript{60} \textit{Ved. Pl.}, p. 634.
\textsuperscript{61} Chakraberty, C., \textit{CHMM}, pp. 121-22.
\textsuperscript{62} Ibid.
The ripe fruits are diuretic, laxative and refrigerant and its ferment juice is known as the wine. Ancient Indian people were also aware of its use. Wilson\(^4\) says "The preparation of fermented liquors was therefore, familiar to the Hindus, and probably amongst them was wine, the North-West of the Punjab, no doubt their earliest site being the country of grape." According to De Condolle, the cultivation of grapes can be traced back to four thousand years and North-Western India has been a great centre of cultivation.\(^5\) The earliest veda, the Rg Veda was composed in the Punjab region and the people in the post Rg-Vedic times were aware of its use. So it gets authenticated that grapes were cultivated in Punjab. There is near unanimity among scholars about Punjab being the homeland of grape.

**Vyalkaśa**\(^6\) was a kind of water plant which grew at spots where dead bodies are burned. According to Priyavrat Sharma it is an epithet of Sāṇḍadūrva.\(^7\) It has not been identified.\(^8\)

**Śaphaka** was an aquatic plant. It was so called because its leaves were shaped like hoofs. Its botanical name is Trapa bispinosa. It is identified with singārā (Hindi).\(^9\) The fruits are of triangular shape and are edible. It is commonly found in the water of Cashmere, where the water nuts form a staple farinaceous food.

**Śalānjālā** or **Śilānjālā**\(^10\) was a grain creeper mentioned in the Atharva Veda.

**Śālūka**:\(^12\) Majumdar identifies it with nymphaea lotus. It is found in the warmer parts of India in pools and lakes.

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\(^4\) Ibid.
\(^6\) AV, 18 3.6; Sharma, P.V., Dravyaguna Vijñana; pt. IV, p. 137.
\(^7\) Ved. Pl., p. 668.
\(^10\) AV; 6.16.4; Kauś. Sūtra, 2.16.
\(^12\) Ibid., 4 34.5; Eng. tr. by Whitney, W.D., p. 207; Ved. Pl., p. 207.
Sīpāla\textsuperscript{72} was a species of water plant mentioned in \textit{Rg. Veda}. Its later name is \textit{ṣaivāla}. It grew in the lakes or tanks. It is treated cold. Its botanical term is \textit{blyxa ceylanica}.

There are references to a large number of names of grasses in the Vedic texts including the Ṛg-Veda.\textsuperscript{1} Trṇa denotes grass in general, which was obviously used for different purposes. It was used as thatching material. Piṅjula denoted a bundle of grass specially of Darbha.\textsuperscript{2} A widely used term for grass was barhi. This indicated the general characteristics of trṇa i.e., which grows rapidly.\textsuperscript{3} Some grasses were used at the time of performing sacrifices e.g. Kuśa grass. Some grasses including Kuśa and Dūrvā had acquired religious sanctity, which were commonly used in sacrifices. String, cords and ropes made of muṇja and śaṇa were used for different purposes.\textsuperscript{4} House hold objects like containers, baskets, mats and several other articles were made of grasses. Besides these had medicinal properties and were used for curing certain diseases. The juice of Dūrvā is diuretic and is useful in haematuresis, vomiting and as an application in catarrhal ophthalmia.\textsuperscript{5} The detailed study of the grasses is given below:

1. RV, 1.161.1; 162.8.11; 10.102.10 etc.; AV, 2.30.1; 6.54.1; 3.12.5; 9.3.4; AB, 3.22.8.24; VI, Vol. 1, p. 319. Majumdar, G.P., Genesis & Development of Plant Sciences in Ancient India, PAIOC, 1946, p. 103.
2. KS, 23.1.
4. TS, 6.5.9.5; TB, 1.6.3.10; VS, 25.31.
Arjuna (Terminalia arjuna W & A). The Rg. Veda has not mentioned arjuna as a plant but it occurs in the sense of white colour. Yāska also takes its meaning white. The Kathaka Sānkhītā\(^7\) informs that there were two varieties of this plant, namely red arjuna and brown arjuna. The later varieties, due to its colour skin to Soma, was used as a substitute of this plant.\(^8\) It has been said that the arjuna plant originated from the flowers of Soma. Its synonym is Phālguna. It is found all over India. It is used in haemorrhages, diarrhoea, dysentery, heart diseases.\(^9\) Its astringent bark is used as a vulnerary and the juice of the leaves in otalgia and the fruit as a tonic.\(^10\) Kauśika Sūtra also mentions that brown arjuna is useful in Kṣetriya disease.\(^11\)

Aśvavāla: The earliest allusion to this grass is found in the Śatapatha Brāhmaṇa.\(^12\) It literally means ‘tail of horse’. It is a kind of wild reed botanically known as saccharum spontaneum. It is generally identified with Kāśa and resembles horse hair, and is used for twine, mats, thatch etc. The Śatapatha Brāhmaṇa alludes to the mysterious origin of this plant. For, once upon a time, sacrifice (offering) escaped from the gods. It became a horse (aśva) and sped away from them. The gods rushing after it, took hold of its tail (vāla) and tore it out; and they threw it down in a lump and then hairs of horse’s tail grew up as aśvavāla grass. It was used for sacrificial seats termed as prastara.\(^13\) Roof of the house was also made of this grass and it was mixed with mud and husks of paddy grains to be used as a plaster for strengthening the wall. Its remains have been discovered from the mud plaster at Hastināpura.\(^14\)

6. RV, 1.122.5; 3.39.2; 7.55.2.
7. KS, 34.3.
8. SB, 2.1.2.11; 5.4.3.7; AB, 5.15; JB, 1.3.54.
10. Chakraberty, C., CHMM, p. 35.
12. SB, 3.4.1.17; 1.3.3.5; 1.8.3.11; 1.8.3.16-17; MS, 3.7-9; KS, 24 8; Āp. ŚS, 10.10.20; VI, Vol. 1, p. 69.
H.M. Elliot\(^{15}\) describes it as growing from three to fifteen feet high, and flowering in great profusion after the rains the base of flowers being surrounded with a bright silvery fleece looks like a fall of snow in neighbouring fields.

\(\text{\textit{Aṇḍika}}\)^{16} was a water whose roots or fruits and leaves were egg-shaped. Roy identified it with \textit{nagar-mothat}.\(^{17}\) It is used as a medicine to cure fever. Majumdar has identified it with seeds of lotus and Macdonell, with a plant akin to lotus.\(^{18}\) It is an edible plant found in Kashmir, Siberia and Europe. Its flowers are used for personal decoration.

\textit{Iksu} (\textit{Saccharum officinarum Linn}) is the most important variety of grass first mentioned in the \textit{Atharva Veda}.\(^{19}\) The synonym of this plant is sugar-cane or ganna. It is extensively cultivated throughout India. Sugarcane was considered as the symbol of sweetness for love and affection. The \textit{Atharva Veda} eulogizes a love song pertaining to sweetness of the juice extracted from sugarcane which really is a charm to win and secure a girl’s love.\(^{20}\) Its tender shoots have been compared with the eyelashes of \textit{Prajāpati} and its pieces with his eyelids.\(^{21}\) It appears that originally it grew wild but for the first time king īkṣvāku of Ayodhya cultivated it and improved the technique of its cultivation.\(^{22}\) It plays an important role in the material prosperity of the people. Fresh juice extracted from sugarcane is a favourite drink. Sugar and gur was also prepared from its juice. The green tops of the stem are used as fodder for cattle. It is used in disorders, due to pitta and vāta, urinary diseases, dysentery, jaundice and externally foul ulcers, carbuncles, boils, burns etc.\(^{23}\)

16. \textit{AV}, 4 34.5; 5.17.16; Eng. tr. by Whitney, W.D., p. 207.
19. \textit{AV}, 1.34.5: \textit{MS}, 3.7.9; \textit{VS}, 25.1.
22. \textit{Ibid}.
Iśikā was a reed grass frequently mentioned in the Atharva Veda and onwards.  It is identified with Sīkkē (Hindi). It grew rapidly in the rainy season. Sūrpa or baskets were made of it. It was regarded as the symbol of fragility. It was used for applying collyrium to the eyes of sacrificer. Rarāti (a pediment) was made of a garland of twisted iśikā grass which was suspended in front of the havirāhānamanḍapa on two posts having a bar connecting them. Majumdar takes it a different plant polytoca barbata. It is found throughout India in hot and damp area from the Punjab to Assam.

Ulapa is a variety of grass frequently mentioned in the Rg. Veda and the later Saṁhitās. In the Maitrāyaṇī Saṁhitā it occurs as upolapa. Majumdar takes it imperta arundinacea. It is found in the hotter parts of India.

Uśira (andropogon muricatus) was a scented grass used in worm. Sharma takes it veteveria zizamiodes. Its name in the different dialects of India is useera (Sanskrit), cuscus grass (English), khas (Hindi). It is commonly found in the Coromandal Coast, Karnataka, Bengal, Rajputana and Chotanagpur area. It is very useful. Being a cooling medicine it is used in the form of infusion, a great refreshing drink in fevers, inflammations and irritability of the stomatch. Externally a paste of root is rubbed on the skin to remove oppressive heat or burning of the body. The grass is used in the forms of cigarettes and smoked with benzoin relieves headache.

24. AV; 7.56.4; 12.2.53; SB, 4; 3.4.16; Ch.U., 5.24.3; KU, 2.6.17; JUB, 1.9; 2.124; Nirukta, 9.8; VI, Vol. 1, p. 81.
25. SB; 1.1.4.19.
26. BŚS, 10.4.13.
29. RV, 10.142.3; AV, 7.66.1; V9, 16.45; VI, Vol. 1, p. 101.
30. MS, 1.7.2.
32. AV, 5.23.3; Bloomfield, M., SBE, Vol. XLII, pp. 436, 453; Āp. GS., 7.18 11.
33. Sharma, P.V., Dravyaguna Vijnāna, Pt. IV, p. 186.
35. Ibid., p. 186.
\textit{Kaʋvindu} is a kind of sacred reed. Bloomfield takes it as a red plant.\textsuperscript{36} The \textit{Kauśika Sūtra}\textsuperscript{37} mentioned that basket made of \textit{Kaʋvindu} grass is thrown up on the enemies for suppressing them.

\textit{Kattrṇa}\textsuperscript{38} (\textit{cympopogon} \textit{citrus}) was a fragrant grass. Roy has identified it with \textit{Sugandhītejan}\.\textsuperscript{39}

\textit{Kāsā}\textsuperscript{40} (\textit{saccharum spontaneum}) was a wild water plant which was used for making mats.\textsuperscript{41} It was supposed that it had the power to remove the effects of evil spirits. \textit{Rasanā} (rope) made of it was put on by the \textit{kṣatriyas} on the occasion of \textit{upanayana} ceremony.\textsuperscript{42} It was also used as a substitute of \textit{Kuṣa} in sacrifices.\textsuperscript{43} Its root is used as a diuretic.\textsuperscript{44}

\textit{Kudrīcī}\textsuperscript{45} is the synonym of \textit{guḍāci}, a kind of shrub. Its botanical term is \textit{coccus cordifolus}. The serpents are to be excluded by keeping this plant in the house. It is used for neuritis and nervous leprosy.\textsuperscript{46}

\textit{Kuṣa}\textsuperscript{47} (\textit{Poa cynosuroides}) was a very sacred grass. Commonly it was used in sacrifices. Its leaves are flat and tip is sharp.\textsuperscript{48} Mats made of \textit{Kuṣa} are used for sacrificial seat. It had some sanctifying power, so it was spread on the ground of sacrifice on which oblations were placed. The sacrificers and
priests also sat on them. The Gṛhya Sūtras state that water with Kuśa grass is poured in the right nostril of woman in Puṁsayana. Kusa grass was used for the preparation of garments on the occasion of fire-rituals. A bunch of Kuśa grass was also used for purifying sacrificial objects.49 Rasanā made of Kuśa grass were used in Upanayana ceremony in the absence of munja grass.50 The Kuśa grass also afforded lurking place for serpents.51

Kuśara58 (saccharum officinarum) is mentioned in the Rg. Veda with Śara and other grasses. It afforded lurking place for serpents. According to B. Majumdar53 it refers to sugarcane, he says this term is still used in Bengal for sugarcane. It is cultivated in the hotter parts of India.

Gavīdhuka54 (Coix lachryma or C. barbata) was a useful grass grown in the rainy season. Its grains were boiled with rice or barley for preparing gruel.55 It was much liked by the cattle. Flour of gavīdhuka was offered to Rudra.56 Its flour is also used as a soft polishing material for the gharma. Its synonyms are gavedhuka, gavedhuka and gavīdhuka. It is cultivated in tropical Asia, hotter and damper parts of India. Its kernel is used as food, medicine and fodder grass.57

Daṇḍan58 was a variety of grass mentioned in the Atharva Veda along with Iṣikā.

Dividhuvak59a is a kind of water plant mentioned in the

49. ŚB, 5.2.1.8; ŚGS, 1.20.1-5.
50. PGS, 2.5.24.
51. RV, 1.191.3.
52. RV, 1.191.3; Ved. Pl., p. 653; VI, Vol. 1, p. 173.
54. TS, 5.4.3.2; MS, 2.6.5; 4.3.8; KS, 15.2; 15.4; ŚB, 9.1.1.8; Sen C.B., Op. cit., p. 63; Ved. Pl., p. 650.
55. TS, 5.4.3.2; ŚB, 9.1.1.8; 14.1.2.19.
56. ŚB, 9.1.1.8.
59. AV, 12.2.54; Whitney, W.D., Eng. tr., p. 682.
Atharva Veda along with Kāsa and Vetasa.\textsuperscript{60}

Darbha\textsuperscript{61} was a sacred grass which is frequently mentioned in the Vedic literature. Some times it has been identified with Kūṣa\textsuperscript{62} but this identification is un convincing because the descriptions of these two distinguish them from each other. Majumdar\textsuperscript{63} has mentioned its two varieties Kharadarbha and Mṛdudarbha. Its certain characteristics have been mentioned in the Atharva Veda.\textsuperscript{64} It spreads rapidly and continually re-rooted itself. It had several roots (bhūrimūla), thousand of leaves and hundreds of stalks. Its synonyms are Sahasraparṇa, Sahasrakāṇḍa, Satakāṇḍa, Śahasravirya etc.\textsuperscript{65} It has been mentioned in the Rg. Veda with Śara and Kūṣara varieties of grass.\textsuperscript{66} It contains medicinal properties and having soothing effects on the mind and body.\textsuperscript{67} It is used for the calming of anger and treated as manyuṣāmana. Amulets made of it were used for protection against falling of hair and ensuring their health growth.\textsuperscript{68} It was considered most valuable among the herbs. It was used in dropsy and retention of urine.\textsuperscript{69} It was also used in dysentry and scorpion-poison and snake-bites.\textsuperscript{70}

The Darbha grass is said to have sprung from the heaven.\textsuperscript{71} Various sanctifying and far reaching supernatural powers have been ascribed to it. It was said that as Indra breaks apart vala, similarly darbha should split the rivals to the heart.\textsuperscript{72} It was used in sacrifices for strewing the ground for

\textsuperscript{60} Bloomfield, SBE, XLII, p. 348.
\textsuperscript{61} AV, 6.4.3.2; 8.7.20; 10.4.13; 11.6.15; 19.28.1-10.
\textsuperscript{63} Ved. Pl., p. 649.
\textsuperscript{64} AV, 6.43.1-3.
\textsuperscript{65} Ibid., 19.32.1.
\textsuperscript{66} RV, 1.191.3.
\textsuperscript{67} AV, 6.43.1-2.
\textsuperscript{68} Ibid., 19.32.2.
\textsuperscript{69} Sāyaṇa on AV, (1.10).
\textsuperscript{70} Sharma, P.V., Dravyagupta Vijnāna, Pt. IV, p. 76.
\textsuperscript{71} AV, 9.32.7.
\textsuperscript{72} Ibid., 19.28.3; Eng. tr. by Whitney, W.D., p. 941.
placing oblations and sitting of priests and sacrificers.\textsuperscript{73} Sulba or rasanā of darbha grass woven in 3 or 5 strands was used for laying the prastara (stone pieces) in Soma sacrifice.\textsuperscript{74} Rg. Veda was a bunch of darbha grass tied with rope. Vedapari-vāsana\textsuperscript{75} (cut up top portion of darbha blades) was used for cleaning the sacrificial ladles. Some times it has been equated with Soma.\textsuperscript{78} The Taittiriya Samhitā\textsuperscript{77} mentions that darbha contains both kinds of food because it is both water and plant. It has sprung up from the water released from the body of Vṛtra, so it signifies water. By offering it to Agni, the sacrificer gratifies him by both food and drink.

Dūrvā\textsuperscript{78} (Pani..um dactylon) is a species of grass mentioned frequently in the Rg. Veda and onwards. It grew in damp soil.\textsuperscript{79} Like darbha, it also spread rapidly on the ground and it did not dry even in the summer. This creeping grass flowers all the year round. It is considered as one of the most sacred grasses. Its synonyms are Sahamānā Sahasravīryā, Satmūlā, etc.\textsuperscript{80} The Vedic people were familiar with its serveral species. Śāda\textsuperscript{81} was a very tender species to dūrvā. The term Śādvala, (meaning a green grassy piece of land) has derived its origin from śad. Sahasrakāndā\textsuperscript{82} was an epithet of dūrvā which indicates that it spread much on the ground. It was considered to be of divine origin.\textsuperscript{83} It was used for sacrificial purposes and still this practice is prevalent in our society. It is durable and hard. It was accorded the status of Kṣatriya among the auṣadhis.\textsuperscript{84} It also

\begin{itemize}
\item \textsuperscript{73} Ibid., 19.33.3.
\item \textsuperscript{74} Ap. ŚŚ., 1.4.10.
\item \textsuperscript{75} Ibid., 15.5.18; 2.24.
\item \textsuperscript{76} AV, 8.7.20.
\item \textsuperscript{77} TS. 6.11.7; ŚB, 7.2.3.2.
\item \textsuperscript{78} RV, 10.16.13; 10.134.5; 10.142.8; AV, 2.7.1.3; MS, 2.7.15; TS, 4.2.9.2; 5.2.8.3; VS, 13.20; AB, 8.5.8; ŚB, 4.5.10.5; 7.4.2.10-12; Vol. 1, p. 372; Ved. Pl., p. 660.
\item \textsuperscript{79} Ibid., 10.16.13; 10.142.8.
\item \textsuperscript{80} AV, 5.106.1; 18.3.6; Chand, D., Op. cit., p. 264.
\item \textsuperscript{81} VS, 15.1.
\item \textsuperscript{82} AV, 2.7.1-3.
\item \textsuperscript{83} Ibid.
\item \textsuperscript{84} Sharma, P.V., Dravyaguna Vijnāna, Pt. IV, pp. 77-78.
\end{itemize}
signified the Kṣatra power because it spread its branches like the Kṣatriya spreading its power in all directions. The Kṣatriya sacrificer became indomitable and well-established in his kingdom by offering dūrvā because dūrvā has a firm rooting on the earth. It was also used as a substitute of Soma plant. This grass contains medicinal properties. The extracted juice of the grass is diuretic and it is useful in haematuria, vomiting and as an application in catarrhal opthalmia. It is also used in wounds as it checks bleeding. Fresh juice is employed in cases of dropsy, chronic diarrhoea and dysentery.

Some scholars think that Pākadūrva and Sāṇḍadūrva are the species of dūrvā. According to Sāyana Pākadūrva is an edible millet termed as Paripakkadūrva. It grew on the spot where dead bodies were burned. Sāṇḍadūrva is explained by the commentator as millet having egg-shaped roots. Its botanical term is Cyperus rotundus. It grew abundantly in damp soil and was called bṛhad-dūrvā (large millet) because of its having long joints.

Dhava is a large shrub common in many parts of India. This plant is botanically known as grislea tomentosa. Its name in the different dialects of India is Dhātaki (Sanskrit), dhaiphul (Bengali), dhavai (Hindi). Its petals furnish red dye and the leaves are used in Madras for dyeing leather and the infusion of leaves is used as tea. In northern India the dried flowers are used internally as an astringent and stimulant in diarrhoea.

85. AB, 8.37.4; 8.2.8.
89. RV, 10.16.3; KGS, 5.5.5.
90. TA, 6.4.1; VI, Vol. 1, p. 513.
91. AV, 18.6.3.
93. Sāyana’s Note.
95. Chakraberty, C., CHMM, p. 125.
dysentery, internal haemorrhages, piles, liver disorders and externally in powder form in application to foul ulcers.\textsuperscript{96}

\textit{Nāda}\textsuperscript{97} was a species of reed, which grew abundantly during the rainy season. It grew on the banks of lakes and tanks or in moist soil.\textsuperscript{98} Sometimes it was called vārṣika\textsuperscript{99} It grew profusely and increased like the hair on head.\textsuperscript{100} Mats and surpa were made of it. Sometimes it was used for making big mats which were spread on cots. Such a bed was termed nādavala.\textsuperscript{101} It was also used for roofing the house. It is interesting to note that a variety of wild cane was used along with husks of rice to reinforce the mud walls with plaster as observed at Hastināpura.\textsuperscript{102} As rains were expected to be heavy in all the regions where the PG ware occurs, the roof may have had a thatch because mud could hardly be dependable and the cane should have played an important role in it, perhaps as the wattle base. Majumdar identifies it with \textit{phragmitis maxima}.\textsuperscript{103}

\textit{Balbaja}\textsuperscript{104} is a kind of coarse grass. It is botanically known as \textit{elusine indica}. It is said to be produced from the excrements of cattle.\textsuperscript{105} It was used in religious ceremonies for the sacrificial litter and fuel.\textsuperscript{106} Baskets and other products made of this grass is referred in a Dānstuti.\textsuperscript{107} In upanayana ceremony it is recommended for sacred thread in the absence of muñja grass.

\textsuperscript{97} \textit{ŚB}, 1.1.4.19; \textit{ṬĀ}, 6.7.10; \textit{Nirukta}, 5.2.
\textsuperscript{98} \textit{RV}, 8.1.33.
\textsuperscript{99} \textit{AV}, 4.19.1.
\textsuperscript{100} \textit{Ibid.}, 6.137.2-3.
\textsuperscript{101} \textit{VS}, 30.16; \textit{TB}, 34.12.1.
\textsuperscript{102} Banerjee, N.R., \textit{Iron Age in India}, p. 197.
\textsuperscript{103} \textit{Ved. PI}, p. 655.
\textsuperscript{104} \textit{RV}, 8.53.3; \textit{AV}, 14.2.22-23; \textit{TS}, 2.2.8.2; \textit{ŚB}, 14.1.3.11; \textit{KSS}, 26.2.8; \textit{Āp. DS}, 1.7.20.1; \textit{VI}, Vol. 1, p. 63.
\textsuperscript{105} \textit{TS}, 2.2.8.1-2.
\textsuperscript{106} \textit{KS}, 2.10; \textit{MS}, 2.2.5; \textit{PGS}, 2.5.24.
\textsuperscript{107} \textit{RV}, 8.53.3.
Bimba\textsuperscript{108} (cephalania indica or memordica monadelpha) is not mentioned in the Vedic literature. It has been only found in the Jamintya Upaniṣad Brāhmaṇa.

Bhāṅga\textsuperscript{109} (cannabis indica or C. sativa) was a hemp. It has been mentioned as an epithet of Soma plant. It is identified with bhāṅga which produces mild intoxication. The Kauśika Sūtra prescribes its use in certain rituals.\textsuperscript{110} It is an erect branching herb from 4 to 10 feet high, with a rough angular stem, small green or whitish flowers and petiolate leaves divided into linear acuminate, serrate leaflets. The impure resin obtained by scraping the tops of the plant is known as charasa. The herb has a peculiar heavy odor and a bitter acrid taste. It is used medicinally as an antispasmodic, antipurutic, antalgastic and hypnotic and it is reputed also to be aphrodisiac.\textsuperscript{111} The drug acts like opium in first stimulating the nervous system and after wards depressing the vital functions. It has also been used with great advantage in various nervous conditions and in uterine haemorrhage.\textsuperscript{112}

Muṇja\textsuperscript{113} (Saccharum munja), was a wild variety of grass mentioned in the Rg Veda\textsuperscript{114} as the lurking place of venomous creatures. It grew abundantly in the western mountainious regions so that the Vedic Aryans named a particular mountain as the Muṇjayānta\textsuperscript{115} Muṇja was considered as a sacred grass. It was used in several sacrifices. It was considered as womb which does not injure the child.\textsuperscript{116} It is employed in drawing off the effect of lightning because it is the natural home of fire.\textsuperscript{117} Cords made of muṇja were used for making girdles (mauṇji) after twisting in 3 folds in upanayapa

\textsuperscript{108} JUB, 3.5 6; VI, Vol. 1, p. 68; Ved. Pl., p. 649.
\textsuperscript{109} RV, 9.61.13; AV, 11.8.15; ŠA, 12.19; Ved. Pl., p. 649.
\textsuperscript{110} Kauś. Sūtra, 4.39; 14.28; 23 14; 35.28.
\textsuperscript{111} Chakraborty, C., CHMM, p. 144.
\textsuperscript{112} Ibid.
\textsuperscript{113} RV, 1.161 8; 1.191.3; AV, 1.2.4; 1.3 6; ŠB, 6.3.1.26.
\textsuperscript{114} Ibid., 1.161.8.
\textsuperscript{115} Roy, B.P., LVE, p. 198.
\textsuperscript{116} ŠB, 6.6.1.23.
\textsuperscript{117} Ibid, 6.6.1.23.
ceremony. It was used for making asandi, (the plaited part of the throne). In the Satapatha Brahma it is described as hollow or sujira. The net woven with strings was used for filtering the Soma juice. Baskets and surpa were also made from its stalks. The Vaca (a harp with a hundred strings) were made of this grass. It was played at the chanting of a stotra at the Mahabharata. Amulets made of this grass is given to the patient in excessive discharge from body. It has been said that just as light hangs between earth and firmament, so the muniya grass, a healing medicine stands between ailment and dysentery. Thus it has curative power. It is cold in nature. It cures itch leprosy, diseases pertaining to urine and eyes. If a patient is suffering from lack of free flow of urine, it should be cured by the use of Muniya or catheter. It cures bile, burns and removes thirst. It also removes fever, diarrhoea and dysentery. Still muniya grass is much useful in our present life.

Vamsha (bambusa arundinacea) is mentioned in the Rg. Veda and onwards in the sense of bamboo or bamboo pole. It is the most useful variety of grass and also called trna-raja, the king of the grasses. It grew wild and abundantly found in the forests. It was so called because it grew in forest. Many species of Vamsha is found in India. Some of the species are spiny at the joints, others are climbers. The stems attain a height of 50 or even 120 feet with a diameter in the larger species from 4 to 8 inches. People of the Harappan civilization were aware of its importance. Houses were made of it.
Charred remains of bamboo have been found from Harappā. It is used as a source material for house construction by the rural people. It is hard and much durable. The Śatapatha Brāhmaṇa has described its uses as the top beams. For this the term Uḍicinavaṁśa (running from south to north) and Prācīnavaṁśa (running from west to east) have been used. Bamboo beams were also used for constructing the sacrificial shed. Even now it is used in marriage ceremony. Baskets, Sūrpa, carts, beds, tables, chairs, bows and staff of arrow are made of it. Sometimes fences are made of it around the fields. Pājaka a basket in which Brāhmaudana was kept was prepared from it. Karotara (sieve) made of bamboo was used for purifying of surā. All sorts of agricultural implements and musical instruments are also made of the bamboo. Its young shoots and grains are eaten as food. The root is given as a specific drug in eruptive affections.

Virāṇa (andropogon muricatus) is a variety of grass. Its synonyms are virîna and virîna. It is said that the land in which Kuṣa and virina grow more is best for constructing the house. Amulet made of it is used in tuberculosis. It is found in the plains of India and low hills.

Śara has been frequently mentioned in the Vedic literatures and later Saṁhitās. According to Śaṅyāṇa it was a kind of grass akin to vaṁśa. It is identified with saccharum arundanaceum. The Rg. Veda mentions it as affording lurking places.

128. RV, 1.10.1; AV, 3.12.6.
129. ŚB, 3.1.1.6; 3.6.1.23.
131. Bh. ŚS, 5.3.2.
132. KŚS, 4 6.17.
136. RV, 1.191.3; AV, 4.7.4; 1.2.1; 1.3.1-9; ŚB, 1.2.4.1; 3.2.1.13; KS, 9.5; 28.4; TS, 5.2.6.2; MS, 2.1.6; Ved. Pl., p. 660.
for serpents. It's plants were very weak and fragile and were easily to be broken. It was used for making arrow shafts and hence it was named after it. Mats, girdles, cords, and cots were made of this grass. Amulets made of it were put on in Puñasavana. It was also used against constipation and retention of urine. New born baby is being given it with butter for increasing power and life. It is found throughout plains and low hills of India.

Sugandhitajana was a fragrant grass used in sacrifices. Sugandhik is also found as its synonym. It is mentioned along-with Pātudru and Guggulu. Majumdar takes it andropogon squarrosus and Sharma takes *Nardostachys Jañamānśi Dc.*

137. Ibid., 1.191.3.
138. TS, 4.4.2; AV, 1.2.1.
139. AV, 8.8.3; 1.2.1; 3.1.9.
140. Ibid.
141. TS, 6.2.8.4; MS, 3.8.5; AB, 1.28.28; ŚB, 3.5.2.17; PB, 24.13.5.
MISCELLANEOUS PLANTS

Anu is a comprehensive term which includes several kinds of grains of considerably small size and less nourishing than other grains. They could be cultivated in climate too tropical and suitable for wheat and barley cultivation and too dry for rice. The millet crops could resist humidity and even severe drought and might be grown in adverse conditions. Roy asserts that millets of several varieties were cultivated in Rajasthan between 1800-3000 B.C. Some potsherds excavated from Ahar bear fixiform impressions in the form of cavities showing the surface and the lateral views of the grains. He agrees with the opinion of Vishnu Mittre that an analysis of these impressions proves that these belong to millets. His assertion is based on certain potsherds from a single excavated site in Rajasthan. But it is not mentioned in any text and as such his view is not convincing. Rather the opinion of G.P. Majumdar that anu was (Panicum miliaceum (cina)), appears to be more convincing. Of course it belongs to the group of millets but it can be only one grain. It cannot be more than one grain. Panicum miliaceum affords a valued carbohydrate food. It is used as a demulcent in diarrhoea and externally as poultice.

1. VS, 18.12; BU, 6.3.22; Also, G.P., Majumdar’s Vedic Plants, p. 647; Sharma, P.V., Dravyaguna Vijnana, Pt. IV, Vol. I, p. 14; Also, Roy, B.P., LVE, p. 149.
3. Chakraberty, C., CHMM; p. 93.
Upavākā⁴ (Wrightea tinctoria or W. antisydnerotica) has been mentioned in the Vājasaneyī Samhitā and the Brāhmaṇas as a species of grain. Later it is identified with Indrayava.⁵ It was used for the worship of Indra. It was wild and also cultivated. It is described as possessing healing power.⁶ It also increased virility of the man. Upavākā is commonly found in Rajputana, Madhya Pradesh and Arbia.⁷ Its seeds are used as anthelmintic and aphrodisiac, and in dysentery and chronic pulmonary affections, and roasted are given in infusion to allay vomiting in cholera.⁸

Kārvira⁹ is alluded to in the Śaṁvidhan Brāhmaṇa as a poisonous plant. Its flowers are of yellow, white and red colour.¹⁰ This plant is botanically known as nerium odoratum or N. odorum.¹¹ It is identified with Kaner (Hindi). Paste made of its root bark and leaves are applied externally in ringworm, boils-eruptions and other cutaneous complaints.¹²

Khalkula¹³ (dolichos beflorus) was a cultivated grain, which has been identified with Kūlath or Kūlthi. It was prohibited to be used in rituals. It is used as pulse as well as animals fodder.

Khalva (gram) is some sort of grain or leguminous grain. Mahidhara glosses it with Caṇaka¹⁴ (cicer arietinum). Weber thinks that it is phaseolus raditus. Sāyaṇa glosses it with nispaṇa¹⁵ (Vigracatjang). The Vedic texts refer to its use in different forms. The Vājasanevyī Samhitā¹⁶ mentions it as a

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4. VS, 19.22; 21.30; MS, 3.11.2; SB, 12.7.1.13; 12.7.2.9; TB, 2.6.11.2; 2.6.4.5; HŚS, 23.1.16; 23.1.25; Ved. Pl., p. 664.
6. VS, 21.30: SB, 12.9.1.5.
9. Sahvidhāna Brāhmaṇa, 2.4.1.
10. Sharma, P.V., Dravyaguna Vijnāna; pt. IV, p. 43.
12. Ibid.
15. BU, 6.3.22; VI, Vol. 1; p. 215.
16. VS, 16.33; 18.12.
sacred grain. It was also used for pulse as being crushed in the Drṣad.\textsuperscript{17} Mittre thinks that gram is associated with horses which were known to the Āryans.\textsuperscript{18} The history of the cultivation of gram is very interesting. Generally it is thought it grew wild in pre pottery levels of Jericho\textsuperscript{19} (C. 6250 B.C.). Its presence at this place in the Bronze Age is undoubted. Linguistic evidence of its cultivation in Egypt goes back to the 18th century B.C. It has been mentioned as falcon faced,\textsuperscript{20} which justified its shape and sacrificial structure. Remains of gram have been found at Atranjikhera\textsuperscript{21} from the OCP ware levels. This is so far the oldest record of its cultivation in the Upper Gangetic Valley Gram was grown in the Narmada Valley\textsuperscript{22} in Circa 1200 B.C. since then its cultivation has spread all over the country and now it is considered as the most important pulse-crop produced in India. Its seeds are used as a nutritious food. Roasted seeds are also favourite article of diet and are regarded as aphrodisiac and are used for dysuria and menstrual-disorders. A decoction of seeds and leaves is used as diuretic,\textsuperscript{23} and the meal is used as an emollient cataplasm, and mixed with honey in carcinoma.

_Garmut\textsuperscript{24}_ was a variety of wild bean. Its grains were egg-shaped and was consumed as pulse.

_Godhūma:\textsuperscript{25} If we study the Indo-European Languages, it would appear that before their dispersal to different regions, the early Āryans were acquainted with barley, but not with wheat. Although, the early Vedic Āryans were settled in the wheat
producing areas of Western India, there is not a single reference to this grain in the Rg. Veda. It is just possible that they liked barley much more than wheat, and as they might have considered the later as a staple food of the Asuras, they did not mention it. It would also appear that only the Indo-Iranians had the knowledge of this cereal and therefore, they had a common term for this, i.e. gandām in the Avesta.

For the first time the wheat is frequently referred to in the Yajur Veda Samhitas and in the Brāhmaṇas and is expressly distinguished from rice (Vṛihī) and barley (Yava). The word occurs similarly in the Satapatha Brāhmaṇa. As it has been just now indicated the two grains namely the wheat and the barley have been differentiated. It is interesting to remark that these two grains have been prescribed to be used in sacrifices in different ways and forms, but the use of wheat has not been prescribed. It appears that the cultivation of wheat in the Gangetic Valley was popularised by the Āryans. Different preparations of wheat were made and tastefully enjoyed. The Homeric Greeks also produced wheat along with barley. The question arises; where did the cultivation of the wheat originate and how it spread to India?

It is difficult to find out, whether wheat cultivation was started in the Indus Valley through Mesopotamia or independently. The wheat of wild variety grew in the North-West India as its remains have been unearthed from the neolithic site at Burzahoma. During the Chalcolithic period, its cultivation was popularised in the north and central India.

27. MS, 1.2.8; VS, 18.12; 19.22; 21 19; TS, 4.7.4.2.
28. ŚB, 12.7.1.2; 12.7.2.9; BU, 6.3.22.
29. TB, 13.7.2.
30. Roy, B.P., LVE, p. 144.
31. Om Prakash, Food and Drinks in Ancient India, p. 9.
34. Ibid, p. 8.
35. Ibid; p. 12.
Chalcolithic wheat belongs to *triticum vulgare compactum* kind, its centre of origin being outside India. How its diffusion took place in the Indus valley? This wheat culture is associated with barley also. The botanical evidences go to prove that the Harappan culture had emerged from an influx from the west. It is also indicated at Navadatoli—Maheshwar.\textsuperscript{35} Deh Morasi Ghundai in Afghanistan, which has been dated back to C. 3000 B.C. has yielded a variety of the Chalcolithic wheat just now mentioned.\textsuperscript{36} In this context it has been suggested by B.P. Roy that wheat cultivation was started in India in earlier times and was popularised by the Indus valley and later by the Āryans in the Gangetic valley.\textsuperscript{37} At Atranjikhera for the first time, remains of wheat were discovered from PG Ware levels along with rice and barley. At this stage its cultivation is confirmed even up to the NBP layers.\textsuperscript{38} The neolithic site at Mahagara in the middle Gangetic valley has also yielded the remains of wheat—according to B.P. Roy, which led him to suggest that perhaps in comparison to West Asia, cultivation of wheat had been started in India independently.\textsuperscript{39}

*Citrarpani*\textsuperscript{40} was a plant with spotted leaf. It appears that it was mainly used to prevent abortion. Sharma has identified it with *uraria pictu* as the synonym of *Prśnipanī*.\textsuperscript{41}

*Tārśṭāgha*\textsuperscript{42} or *ṭṛśṭāgha* has been mentioned in the *Atharva Veda*. It was supplied for fuel. Weber thinks that it is *sarṣapa* or mustard plant.\textsuperscript{43}

*Tila* (*Sesamum indicum*): Excavations at Mohenjodaro and Harappa have yielded the remains of sesamum which goes

to prove that it was produced in the Indus valley at least before 1500 B.C. B.P. Roy wrongly refers to its occurence in the Rg. Keda. However it has been mentioned in the several contexts in the later Samhitās and Brāhmaṇa texts. Its grains have been universally used in sacrifices from the early past. It is generally used as one of the ingredients of pīṇḍa. Paddy and sesamum have been compared with cow and calf respectively. Sesamum grains were widely used for extracting oil for consumption. Like māṣa it was also cultivated during the hemanta and Śīśira. Tila was of two varieties, namely the cultivated one and wild one. Its buds appeared very beautiful, and the dried plants were used as firewood. Tilaudana (porridge or boiled sesamum) was taken on special occasions. The wild variety of sesamum was known as Jartila. Its use was prohibited in sacrifices.

The question is: did sesamum come to India from outside or indigenous. It has been established beyond all shades of doubt that it was cultivated in Harappā and Mohenjodaro at least before 1500 B.C. But prior to this it was cultivated in Sumer at least in the beginning of the third dynasty of Ur (2350 B.C.). B.P. Roy conjectures that it might have been brought to Sumer from the Indus valley or vice versa because both had established cultural and commercial contact with each other. Its first cultivation probably began near the headwaters of the Niger river in Africa. It is just possible that its

44. Piggot, S., Pre-Historic India, p. 153.
46. TS, 7.2.102; KS, 21.6; MS, 3.3.4; 4.3.2; VS, 18.12; AV, 2.8.3; 6.140.2; 18.4.32; ŠB, 9.1.1-1-15.
47. Âs GS, 2.5.2; Vide, Sen, C.B., VDR, p 145.
48. AV; 18.4.32.
49. TS, 7.2.10.2.
50. ŠB, 9.1.1.3.
51. AV, 2.8.3.
52. BU, 6.4.16.
53. TS, 5.4.3.2.
cultivation in Sumer might have been popularised by the African people from where the Harappans brought its grains to the Indus valley and started its cultivation. The earliest people to reach India from African were Negroids. The skeletons showing Hemetic Negroids have been discovered from microlithic culture at Langhnaj. This may be the story of the migration of Sesamum from Africa to Sumer and from there to Indus Valley. In the absence of a more acceptable theory, the conjecture of B.P. Roy that, Tila was not indigenous to India, remains open to debate. Because, while discussing the origin of sesameum he conveniently forgets to mention the specific reference to the sources on which he bases his contention.

Dâśyrika: According to Roth it is the name of a tree but Whitney treats the word as a mere adjective, meaning to accompany the binding of an amulet from ten different trees, such as palâśa, udumbara, etc. Its amulet was bind to takmanâsan.

Nâmba is the name of some sort of grain. In the Taittiriya Samhitâ and the Kâsthaka Samhitâ the word Âmba is mentioned as its synonym.

Nîvâra is alluded to in the Yajur Veda Samhitâs and Brâhmaṇas as a variety of wild rice.

Parasu or Prasu has been mentioned in the Rg. Veda and later Samhitâs. It denotes the young shoot of grass herbs which was used in sacrifices. It is also used in dyspepsia.

57. AV, 29.11; Eng. tr. by Whitney, W.D., p. 50; Ved. Pl., p. 649.
58. ŚB, 5.3.3.8.
59. TS, 1.8.10.1; KS, 15.15.
60. MS, 2.4.10; VS, 18.12; KS, 12.4.
61. TB, 1.3.6.7; ŚB, 5.1.4.14; 5.3.3.5; See also Upadhyaya, G.P., p. 208.
62. RV, 1.19.10; 3.5.8; 7.3.5.7; 8.6.20; KS, 36.2; ŚB, 2.5.1.18.
Economy of Plants in the Vedas

Pūtika has been mentioned in the later Vedic literature as a plant of divine origin. Sometimes it has been identified with ādāra. The Śatapatha Brāhmaṇa refers to it as a substitute of Soma. Some commentators identify it with rohīṣṭra and others with a creeper akin to Soma. There is unanimity among the scholars that it is caesalpinia bonducella, but Hillebrandt identifies it with basella rubra or B. Cordifolia.

Priyaṅgu was an inferior quality of corn. It is identified with panic seed or setaria italica. Its grains were characterised by their gold like husks. Among the herbs it represented enjoyment and pleasure. It was used in certain rituals as an oblation. On the occasion of royal consecration, its sprouts were placed on the head of ksatriya (king). It is described as phalvati. Keith takes it only as a quality of corn, whereas Majumdar takes it both corn as well as ausadhi. This is commonly cultivated in South-East Asia. The Chinese records indicate that the history of its cultivation in China goes back to the third millennium B.C. and it seems, that it spread in the west via India.

Baja (cruciferae sinapis) was a plant of scented fume. It is genus of white mustard, which is of two varieties, white and yellow. Baja represented the former. Its name in the different dialects of India is Siddharthaka (Sanskrit) saphed sarson (Hindi), sveta sarsaba or sarisa (Bengali). It is cultivated throughout India. It yields a good edible oil. Its tender shoots

64. KS, 34.3; SB, 14.1.2.12; PB, 8.4.1; 9.4.3; JB, 1.354; TA, 5.2.10.
65. SB, 14.1 2 12; KS, 25 12.19; As. SS, 6.8.
67. TS, 2.2.11.4; KS, 10.11; MS, 2.1.8; VS, 18.12; AB, 8.16.
68. Basu, J., India of the Age of Brāhmaṇas, p. 58.
70. Sad. Br., 5.2.
72. Mittre, V. "Remains of Rice and Millet" Excavations at Āhar, p. 231.
74. Chakraberty, C., CHMM, pp. 186-17.
and leaves consumed as vegetable. It is called rakṣognea,
kusṭhghna and garbharaṅkṣak. It was employed as an amulet
in the Śimantonrayana76 (a rite performed during the pregnancy
of the wife) in the eight month of a pregnant woman with
pinga or yellow sarṣapa. It was also used against demon of
disease. The demon was chased away by its scented fume.
Thus the pregnant woman was protected from demon.76

Masūra77 (lens esculentna or lens culinaris) was one of the
cultivated grains mentioned in the Brhadāraṇyaka Upaniṣad. It
was used in pulse.

Masūsya78 first occurs in the Taittiriya Brāhmaṇa. Accord-
ing to commentators, it is the name of a grain of the north
country.

Mūṣa79 (phaseolus raditus) was a kind of been. It
appears that it was known to the Indo-Iranians80 because in the
Āvesta it has been referred to as mūṣa. In Hindi dialect it is
termed urada. Like barley, it also was considered as very
sacred. Different kinds of preparations made of mūṣa were
offered as oblations to the gods and departed souls. It is sown
during hemanta (autumn) and harvested in śisira (Winter).81 Its
beans are used as an article of food. The macerated bean are
applied to cutaneous affections and the root is supposed to be
narcotic.82 Its inferior variety was termed Kulmūṣa83 (Kutsita
mūṣa). It was not liked by the persons of noble families, but
it was consumed by the poor,84 in different forms, such as pulse

75. AV, 8 6.3; Eng. tr. by Whitney, W.D., p. 494.
76. Ibid.
77. MS, 2.11.4; TS; 4.7.4.2; VS. 18.20; BU, 6.3.22.
78. TB, 3.8.14.6; ĀŚ.ŚŚ, 20.10.5; VI, Vol. 1. p. 139.
79. AV, 6.140.2; 12.2.53; TS, 5.1.8.1; MS, 4.3.2; VS, 18.12; ŚB, 1.1.1.10;
   BU, 6.3.22.
81. TS, 7.2.10.2.
83. Ch. U, 1.10.2.7; Nirukta 1.4.
84. AV, 12.2.5.3.
and gruel. Its remains have been discovered from the NBP ware levels at Atranjikhera. The evidences of its cultivations in the Narmada valley in Circa 1200 B.C. have come to light from excavations at Navadatoli Maheswar.

*Mudga* (*phaseolus mungo*) was a kind of bean. It has been mentioned in the *Vājasaneyi Sanhitā* in a list of vegetables. Its grains were boiled with milk or water (*mudgaudana*) and were eaten with relish. It was consumed as one of the pulses. Basham thinks that in India it is classes as a grain, but being a leguminous plant, it cannot be considered as a corn.

**Yava (Barley) (*Hordeum vulgare*)**: Barley is amongst the most ancient of cultivated plants; but as its forms resemble each other in their economic properties and seem to have had, in all languages, a common name, it is very difficult to ascertain which variety is referred to by the ancient writers. Proofs exist in abundance, however, that barley in one or more of its forms was cultivated in the remotest times. Its original form was *Yeva* which in the Vedic sanskrit and Zend is *Yava* and in Greek it is *jea*.

It is included in the list of five cereals sown by the Emperor *Shen nung* of China who reigned about B.C. 2700. In the *Rg. Veda* it is the only cereal whose name is worth-mentioning but it is doubtful whether it denoted cultivated real barley or was a generic term to mean all vegetables. It has been suggested that *Yava* was originally a wild variety of cereal.

In the epics of Homer, barley has been mentioned as a common foodgrain of the then Greeks. Barley was, however,

85. Chaudhury, K.A.; *AAFNl*, pp. 50-51, 61.
87. VS, 18.12.
88. ŚĀ, 12.8, *Viṣṇu Dharmasūtra*, 80.1.
91. *RV*, 1.23.15; 1.66.3; 1.117.21; 1.135.8; 1.176.2; 2.5.6; 2.14.11, 5.85.3; 7.3.4; 8.2.3; 8.22.6. 8.62.9; 8.78.10. etc. *VI*, Vol. II, p. 187., Sharma, P.V., *Dravyaguna Vijnāna*, Pt. IV, pp. 120-22, Majumdar, G.P., *Vedic Plants*. p. 666.
not strictly used in the sense of barley grain rather it was a
generic term for all kinds of vegetations as asserted earlier.
Yava has been referred to in the sense of grass to be fed to
the animals.\textsuperscript{94} Homer also has made reference to Yava as the
fodder for horses.\textsuperscript{95} Yavasād was used as one of the epithets of
Agni because he consumed it in the form of oblation or destoy-
ed its wild variety in the forest fire.\textsuperscript{96} The Vedic texts refer to
several terms derived from Yava such as Yavyāvati, a river
whose basin was famous for the production of bumper crop of
barley.\textsuperscript{97} The powder of barley grains was mixed with the juice
of Soma plant and therefore, Yavasirā was a popular epithet of
Soma.\textsuperscript{98} Yavasa was an insect which destroyed the barley
crop.\textsuperscript{99} Yavamanta was the preson who possessed a huge
quantity of barley grains.\textsuperscript{100}

From the Atharva Veda Samhitā onwards Yava has been
-used in the strict sense of barley grain.\textsuperscript{101} Yavaya meant stalk
of its plants.\textsuperscript{102} It has been stated that the eyebrows of Agni
are made of barley grains.\textsuperscript{103} The stalks of plants were tawny
brown in colour with silvery ears and as such they were objects
of attraction.\textsuperscript{104} If we compare the barley plants with other
plants, they were moist and sturdy. On the occasion of kings
Mahābhīṣeka sprouts of barley were brought by the priest to be
placed on the king’s head for bestowing on him the same skill
and strength.\textsuperscript{105} Barley and paddy were considered so important
that they have been mentioned as the two sons of Prajāpati.\textsuperscript{106}

\textsuperscript{94} VI, Vol. II, p. 187.
\textsuperscript{96} RV, 1.44.11.
\textsuperscript{97} \textit{Ibid}, 6.27.6; PB, 25.7.2.
\textsuperscript{98} VI, Vol. II, p. 188.
\textsuperscript{99} AV, 5.23.7-8.
\textsuperscript{100} VS, 19.6.
\textsuperscript{101} VI, Vol. II, p. 187.
\textsuperscript{102} TS, 1.3.1-2.
\textsuperscript{103} VS, 19.6.
\textsuperscript{104} TS, 2.8.3.
\textsuperscript{105} AB, 8.3.16.
\textsuperscript{106} TS, 7.2.10.2; KB, 4.13.
The Vedic texts mention only two varieties of barley. Govidhuka was a wild variety grown in the rainy season which resembled coarse barley. It was much liked by the animals, so it was termed (govidhukā). Upavākā was another variety which was later termed Indrayava. It formed an essential ingredient of gruel and groats.

There appears to be little doubt that the variety most cultivated in antiquity, as it is to this day in India, was *H. hexastichum* Linn, *H. distichnum* Linn was also grown and employed as a food grain in pre-historic times, while the cultivation of *H. vulgare* seems to date from more modern times.

The only variety cultivated in India is *H. hexastichum*. Little is known regarding its introduction or the origin of its cultivation in this country, but from its having evidently been well known and valued by other people of the Eastern countries it is probable that it was also grown at least in the north of India in very remote times. This supposition is confirmed by the intimate connection of this grain with several of the rites and beliefs of the Hindu religion. The grain is employed in the ceremonies attending the birth of a child, weddings, funerals and in certain sacrificial rites.

The barley has medicinal value as well. "The husked seed of *H. distichum* occupies a place in the Pharmacopoeias of England. The United States and India under the name of Hordeum Decorticatum or pearl barley. The grains of this variety of prepared barley are sub-spherical or avoid, about two lines in diameter of a white farinaceous appearance and have the peculiar taste and odour common to most of the cereal grains.”

108. *VS*, 19.12; 21-30; *ŚB*, 12.7.1.3.
110. *ŚB*, 12.9.1.5.
"Barley is demulcent and easy of digestion and is for these reasons much used in the dietary of the sick. In India powder of the parched grains is much employed in the form of a gruel in cases of painful and atomic dyspepsia." The foodforming constituents of average husked Indian barley are starch 63%, cellulose 7%, albumenoids 11.5% and 12.5% of water. It is a staple article of food of the poorer classes in many parts of the country, the north-west part, Punjab and modern Faizabad District (Oudh).

Barley has of late years attracted considerable attention wing to its cheapness and value as a fodder. It has long been employed in Punjab for this purpose, the crop being cut two or even three times when quite young without marked injury to the final yield of grain. Even now the grain is much employed in parts of India in the preparation of a kind of beer or spirituous liquor and its value for this purpose has been long known.

Lakṣmana is a plant having red spots upon its leaves. It is used against abortion.

Vadhaka (cassia fistula Linn) tree, has been mentioned in the Atharva Veda. It is used against an advancing enemy. Its synonyms are Vadhaka, badhaka, bādhaka and Vadhātaka. Some commentators take it girimālī, girimālak and Vadhīghat. Yūpas and Śruva were prepared of its wood. The use of its wood as Samidhā has been forbidden.

Varṣāhū (boerhavia procumbens) is a kind of plant mentioned in the Taittirīya Samhitā. It is produced in rains. Its synonyms are Śarṣāhū and Varṣāhya.

112. Ibid.
113. AV, 2.25.3; Ved. Pl. p. 654.
115. Sharma, P.V., Dravyagupta Vijnāna, pt. IV, p. 185, KŚS, 22.3.8.
116. JGS, 1.1.
117. TS, 3.4.10.3; MS, 3.14.19; VS, 24.38; Baudh. SS. 13.37; HSS, 22.6.18; VI, Vol. 1 p. 517.
Vihalaha\textsuperscript{118} was a plant mentioned in the Atharva Veda as father of Sarṣapa or mustard plant.

\textit{Vṛśa}\textsuperscript{119} is some kind of plant. It is used in snake bite.

\textit{Vṛthi} : Paddy is the most important grain of the tropical regions. It was termed Varṣavṛddha\textsuperscript{120} because it was grown in the rainy season. It is never mentioned in the Rg. Veda and on this basis it has been thought that the early Vedic Āryans were not acquainted with paddy. It has been argued that as the Rg. Vedic geographical regions mainly included western India which was a wheat producing zone, so the text does not mention paddy. But B.P. Roy rightly disagrees with this argument on the ground that there are archaeological evidences supporting the production of rice in the region. The production of rice during the Rg. Vedic period can not be ruled out. It is worthy of note that riverine region of Punjab was a suitable paddy growing zone. Besides rice seems to be indigenous in the south-east of India. This fact accounts well for the absence of any reference to this grain in the Rg. Veda.\textsuperscript{121}

The later Sāṁhitās, the Brahmana and Upaniṣad texts make frequent references to Vṛthi both for domestic and sacrificial purposes.\textsuperscript{122} In these texts, paddy and barley have been stated as essential food grains bestowing strength on the sacrificer.\textsuperscript{123} It has been stated that the sacrificer could gain the same merit by offering paddy and barley to gods which he could acquire by slaughtering animals in sacrifices.\textsuperscript{124} Some of the Vedic texts contain a story which describes the sacrificial origin of paddy. It is stated that once the sacrifice had entered the earth, the same being surrounded by gods turned into

\textsuperscript{118} AV, 6.16.2; Chand, D, Op. cit., p. 219, Ved. Pl., p. 664.
\textsuperscript{120} VS, 1-16.
\textsuperscript{121} VI, Vol. II, p. 345.
\textsuperscript{122} Om Prakash, Op. cit., p. 10.
\textsuperscript{123} Roy B.P., LVE. p. 138.
\textsuperscript{124} AV, 2.8; SB, 1.2.3.6-7.
paddy. They wished to perform their animal sacrifice with rice.\textsuperscript{126} The paddy grain has been compared with an animal which was the victim of sacrifice.\textsuperscript{125} The chaff and straw of paddy are the hair of the animal, its husk the skin, its smallest particle the blood, its flour represents the flesh of the sacrificial victim and other substantial parts are forks.\textsuperscript{126} The Vedas did not favour the slaughter of animals are therefore, they prescribed paddy and barley in lieu.\textsuperscript{127} This fine changeover developed when the people began to question the utility of sacrifices involving the slaughter of animals.

The sacrificial importance of rice has been highly lauded and it was considered as representing the head of sacrifices.\textsuperscript{128} \textit{Caru} was a commonly used oblation made of rice grains and milk. It was symbol of nourishment.\textsuperscript{129} The sacrificer by preparing \textit{caru} enjoyed the benefit of nourishment. Both rice and barley formed the materials for making \textit{havis} to be offered to gods. It was prepared, with the milk of the \textit{vrata} cow.\textsuperscript{130}

\textit{Krśnavrīhi}\textsuperscript{131} (black paddy) and \textit{ṣuklavṛīhi}\textsuperscript{132} (white paddy) were the most common varieties of rice. \textit{Āsudhānya}\textsuperscript{133} was a swift growing variety which was ready for harvest within a short of two months. It is called \textit{Ṣāthi} now.

\textit{Hāyana}\textsuperscript{134} was a paddy having red husk which took one year to ripe. It is identified with the post-vedic \textit{Saṃvatsara-pakvavṛīhi} as referred to by \textit{Paṇṭini}.\textsuperscript{135} \textit{Nivāra} was a wild variety of paddy which grew in shallow tanks.\textsuperscript{136} It was regarded as a

\textsuperscript{125} ŠB, 3.8.3.1; AV, 2.1.8.
\textsuperscript{126} AB, 2.1.9.
\textsuperscript{127} \textit{Ibid}, 2.2.11.
\textsuperscript{128} ŠB, 1.2.1.2.
\textsuperscript{130} ŠB, 3.2.2.14.
\textsuperscript{131} TS, 1.8.10.1.
\textsuperscript{132} JB, 1.43; CH.U., 5.10.6.
\textsuperscript{133} ŠB, 5.3.3.2; KS, 15.5.
\textsuperscript{134} ŠB, 6.3.3.6.
\textsuperscript{135} \textit{Aṣṭ}, 3.1 48.
\textsuperscript{136} KS, 12.4; MS, 3.4.10; VS, 18.12; TB, 1.3.6.7; ŠB, 5.1.4.14.
sacred grain. In rājsūya, cake made of rice of nīvāra was offered to Brhaspati.\textsuperscript{137}

Mahāvrīhi\textsuperscript{138} was the most important variety of paddy. Its grains were larger in size in comparison with others. Its taste also was superior to others, so, on these considerations, it has been regarded as the samrāt among the grains.\textsuperscript{139} It was termed mahāśāli because it was a prized food item used specially by the rich peasants and the nobles whose household establishments were comparatively larger, proving their superior material prosperity. Its superior quality both in size and taste has been elaborated in the statement that vrīhi represents the ksatra. Mahāvrīhi signifies the universal sovereignty and by bringing sprouts of its grains he places universal sovereignty in the hands of the king.\textsuperscript{140}

The Vedic sources do not mention where the mahāśāli was produced. During the post-vedic times it was produced mainly in Magadha.\textsuperscript{141} Mahāśāli should be identified with Bāsmati rice now produced in Patna as it was sweetscented.

Archaeological evidences confirm that rice was produced in northern India even during heolithic and chalcolithic period. Excavations\textsuperscript{142} conducted at Mahagara, 85 kms. Southwest of Allahabad in the Belan basin have brought to light carbonised rice along with wheat and barley. Their scientific analysis proves that these rice samples belonged to a period about 7000 years ago i.e. circa 5000 B.C. It is the earliest evidence of the cultivation of rice in India so far known. Its discoveries from all levels from the OCP, Black & Red ware, PGW and

\textsuperscript{137} ŚB, 5.1.4.14.
\textsuperscript{138} TS, 1.8.10.
\textsuperscript{139} AV, 11.4.13; AB, 8.16.
\textsuperscript{140} AB, 8.3.16.
\textsuperscript{142} Sharma, G.R., \textit{From History to Pre-history}, p. 110.
NBP ware at Atranjikhera suggest that rice was a staple food of the inhabitants of this place.\textsuperscript{143} Chirand also has yielded evidence of early cultivation of rice.

It may be concluded without fear of contradiction that rice was produced in India in a vast region extending from Gujarata in Bihar and Orissa and from the upper Gangetic valley to the Narmada valley.

\textit{Śyāmāka}\textsuperscript{144} (\textit{echinochola frumentacea} or \textit{Panicum frumentaceum}) has been mentioned in the later Vedic literature, as a cultivated millet. Its seed is light in weight and very small in size, so it was used as a simile to indicate the lightness of the things.\textsuperscript{145} The lightness of the seed is alluded to in the \textit{Atharva Veda}\textsuperscript{146} and said to be easily blown away by the wind. One of its characteristics was the fast growth (\textit{plasuka}) of plants. Its cake was offered to Soma in the \textit{Rājasūya}.\textsuperscript{147} It was most liked food of pegions. Max Muller renders it as canary seed.\textsuperscript{148} It ripens in the rainy season. Its seeds are also eaten by the people.\textsuperscript{149}

\textit{Saha}\textsuperscript{150} is one of the four principal \textit{virudhas} mentioned in the \textit{Atharva Veda}. Some commentators consider it as powerful drug.

\textit{Sairya}\textsuperscript{161} was a species of grass mentioned in the \textit{Rg Veda}. It is infested with insects. Some of the \textit{Grhyasūtras} considered

\begin{enumerate}
\item[143.] Chowdhary, K.A., \textit{AAFN}, pp. 20-21 & 60-64.
\item[144.] \textit{TS}, 1.8.1.2; 2.3.2.6; 4.7.4.2; \textit{MS}, 2.11.4; \textit{VS}, 18.18; \textit{KS}, 10.2; \textit{ŚB}, 10.6.3.2; 12.7.1.9; \textit{Ved. Pl.}, p. 662.
\item[145.] \textit{AV}, 19.50.4; \textit{Ch. U.}, 3.14.3; \textit{Kauś. Sūtra}, 8.20; 74.16.
\item[146.] \textit{Ibid}, 20.135.12.
\item[147.] \textit{ŚB}, 5.3.3.4.
\end{enumerate}
it as inauspicious grass\textsuperscript{152} Sharma\textsuperscript{153} identified it with Kāśa.

\textit{Sāsa}\textsuperscript{154} denotes herb or grass. The word is also applied to the \textit{Soma} plant and the sacrificial straw.

\textit{Sāspa}\textsuperscript{155} has been mentioned in the later \textit{Samhitās} and the \textit{Brāhmaṇas}. It denotes young or sprouting grass.

\textit{Svadhā}\textsuperscript{156} first occurs in the \textit{Atharva Veda}. Majumdar takes it as a kind of plant.

\textit{Svadhitī} \textsuperscript{157} According to Roth it is a great tree with hardwood.
7

CONCLUSION

After a perusal of the foregoing chapters it becomes perfectly clear that the plants formed the basis of ancient Indian economy. There are references to more than five hundred plants and trees etc., in the Vedic and post-Vedic literatures and it has been indicated as to how they were to be used for various purposes. The subject "Economy of Plants in the Vedas" is fully justified in view of the wide use they were put to in the Vedic and post-Vedic India. Not only domestic utensils and vessels were made of the wood, but also axles of chariots, boats, carts and furnitures etc. were made of the woods of several trees and plants. The chariots, boats and carts brought a revolution in the warfare, trade and commerce. While the chariots were used for fighting battles, boats and carts were used as means of transportation for carrying the commodities of trade and commerce. Navigation through boats provided stimulus to the trade and commerce in ancient India.

The axle of chariots, boats and carts would naturally be made of such wood which were exceptionally hard, e.g. the Khadira, Śimśapa etc. The utility of the plants and trees in the ancient Indian Society led the authors of Vedic literature to describe them in detail. In fact, a large part of the Vedic literature and almost the whole of the Atharva Veda is dedicated to praise of plants. It was probably the usefulness of the plants.
and trees that led the people in the past to depict them on works of art such as seals, sealings, coins, potteries and monuments etc. If we study the seals from Harappā and Mohenjodara, potsherds from Hastināpura and Atranjikhera etc., the coins of Audumbaras, we find a large number of trees depicted on them which sufficiently indicate their importance in contemporary society. The present work, therefore, based on a study of the Vedas and corroborated through the archaeological sources, sufficiently indicates the importance of plants in ancient India.

Although the subject relates to the study of vedic plants, the Vanaspati and medicinal herbs referred to in the post-Vedic literature also deserve our adequate attention. The importance of Tulasī as a medicinal herb was realized in the post-Vedic India. The emergent picture is that although its importance was realised quite late it is no less important for a student of ancient Indian plants.

The close association of the Vedic people with plants is obvious from the fact that they had studied their structure in detail and considered them also as living beings. They had classified them into several classes on the basis of their characteristics. As indicated earlier, they used them as medicinal herbs. It was the result of minute and intensive study of plants for a long time. They obtained fruits, flowers, saps and other things from them. Religious importance was also attached with them and sacrificial posts (Yāpas) were made of particular wood in different sacrifices. From the above it becomes clear that the plants possessed the medicinal ingredients and the sacrificial value as well.

Not only this, the plants were also useful for building houses. Most of the houses in the rural areas were built of wood and straw. Excavations of ancient sites have revealed the use of these materials for building mud houses. At Atranjikhera representing PG ware culture, post-holes over thick mud floor have been discovered which proved that the thatch roofing on bamboo or wooden-posts was in vogue. The Atharva Veda also informs that usually the houses were made of woods and reeds.
The importance of medicinal herbs can be realised from the fact that an independent and separate Sūkta namely the āuṣadhi-sūkta has been dedicated to its praise. The āuṣadhis with excellent powers and hundreds of forms may remove the various types of ailments. "One who has a store of herbs is like a mighty king amid a crowd of men and a physician, is a fiend-slayer and chaser of diseases". Herbs are the embodiment of nourishment and strength. To conclude "unharmed is the man who digs up the herb and unharmed is the man for whom the herb is dug up". Ajaśīnga, Āpāmārga, Ārkā, Arundhati, Āśma-gandhā, Abaya, Kuṣṭha, Guggulu, Jaṅgīda, Śatavāra are a few among the vast number of medicinal plants mentioned in the Vedic and post-Vedic literatures.

Vanaspati or Vṛksa are used ordinarily to denote trees. Yāska has taken the Vanaspati to mean the lord of forest." To conclude the terms Vanaspati and Vṛksa have been used to denote trees and small trees respectively. They were used for timbering, roofing, thatching, chariot making, dice making and sacrificial yūpas. Not only this, certain plants were of exclusive medicinal value, which led the authors of Vedic literature to laud their role in detail. Powdered roots of adhyānta is given to the women in menstrual period of conception (Garbhādhāna). It is probably for this reason that it has been forbidden to be near a burial ground. The hard wood of araṭu was used for manufacturing the axle of chariots. Āśvattha has been rightly regarded as the king of the trees, which is the abode of Brahmā, Viṣṇu and Śiva. In the Rg. Veda the āśvattha has been described as the mother of mankind, which can make people free from diseases. Āmalaka (the foster mother). Āmrā exceptionally sweet in taste (phalottama), Udumbara, Karaṇja, Khadira, Palāsa, Plakṣa Bilva, Śamī, Śālmali, Śīṁsapa and Vībhītaka are a few among the trees mentioned in the Vedic literature.

The English rendering of Latā (creeper) indicates that it cannot be as hard as some plants and trees. They are naturally soft and usually grew in rainy season. It was used for fodder, vegetable, decorative purposes and medicines. Being soft and green it must have been liked by the animals as fodder. Latā
was put to different uses. For example, if *Amûlô* was used for poisoning arrows, *Alâhû* was used by the poor classes as vegetable food. *Urvâruka* (Hindi Khira) was a climbing plant whose young fruit is eaten and pulp is regarded as emollient. Even now it is a good green seasonal fruit, which is relished as food by the people both poor and rich alike. Its fruit is highly esteemed as a garden vegetable. *Kumuda, Puṇḍârika, Madâvati* and *Śaphaka* are a few among important creepers, which played an important role in the economic life of ancient India.

*Tṛṇa* denotes grass in general, which was obviously used for different purposes. It was used as thatching material. Some grasses were used at the time of performing sacrifices, e.g. *Kuśa* grass. Some grasses including *Kuśa* and *Dûrvá* had acquired religious sanctity, which were commonly used in sacrifices. String, cords, and ropes made of *Mûñja* and *Śaṇa* were used for different purposes. Household objects like containers, baskets, mats and several other articles were made of grasses. Besides this they had medicinal value also. The juice of *dûrvá* is diuretic. Important among the grasses are *Arjuna, Ikṣu, Kûśa, Darbha, Dûrvá*, and *Mûñja* etc.

The foregoing discussions makes it clear that, the platns, trees, creepers and grasses together constituted the back-bone of the Vedic and post-Vedic economy.
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