



DISEASES IN PLANTS AND TREATMENT WITH SPECIAL REFERENCE TO VRIKSHAYURVEDA

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Introduction: Ayurveda is based on the *Panchamahabhuta* and *Tridosha* theories in human beings, is also applicable to plants and animals. Vrikshayurveda is a branch of science which deals with growing healthy plants to yield desired products. The term Vrikshayurveda is used to denote the knowledge of plant life in all aspects. Various measures for nutrition, prevention of diseases, diagnosis and treatments are mentioned in Vrikshayurveda. It is the original science of today's "permaculture" or agroforestry. The plants are affected by several diseases like that of human beings. Many ancient methods of treatment are used to cure these diseases. Here we are discussing various diseases in plants and treatment with special reference to Vrikshayurveda.

Objective: To analyse the diseases in plants and treatment with special reference to Vrikshayurveda.

Result and Discussion: Vrikshayurveda has mentioned various aspects of plants regarding procuring, preserving, treatment of seeds, planting materials, methods of irrigation, selection of soil, bio fertilizers and techniques for healthy growth and productivity of plant. The diseases in all types of trees are stated to be of two types: external and internal. The internal ones are those which are caused by *Vata*, *Pitta* and *Kapha* and external ones are caused by insects, worms, cold weather etc. The traditional treatment methods which has been mentioned in Vrikshayurveda will improve the quality and quantity of the products

Conclusion: The scientific knowledge of Vrikshayurveda and its application is very essential to understand various diseases in plants and its management with help of ancient agrotechniques and thus we can overcome the modern technique hazards like chemical fertilizers etc. So there is a need of research in this field to improve the quality of plants and their products.

Keywords: Vrikshayurveda, *Tridosha*, Diseases

INTRODUCTION

Vrikshayurveda is a traditional entity of India which deals with the health of plants and give them longevity and it also helps for the production of superior quality yields from the healthy plants both in the terms of its uses as food and medicine. The colophon of the manuscript mentions *Surapala* as the writer of the text. He is being mentioned as a scholar in the court of *Bhimapala*. After the discovery of *Surapala's* Vrikshayurveda he mentioned various measures for nutrition, prevention of diseases, diagnosis and treatment based on the *Tridosha* theory. The understanding of physiology and pathology of plants is similar to that of humans. It is based on the philosophy of *Panchamahabhuta*. *Brhatsamhita* of Varahamihara of the sixth century also contains a chapter titled Vrikshayurveda¹. The proper interpretation and availability of Vikshayurveda also plays an important role in the field of intercropping and the proper use of organic fertilizers in order to maintain the eco-friendly environment. The diseases in all types of trees are stated to be of two types: external and internal. The internal ones are those which are caused by *Vata*, *Pitta* and *Kapha* and external ones are caused by insects, cold weather etc².

AIMS AND OBJECTIVES

To analyse the diseases in plants and treatment with special reference to Vrikshayurveda.

MATERIALS AND METHODS

Concepts related to diseases and treatments are analysed in perspective of their clinical application over plants and trees from Ayurvedic literature, internet source and various journals.

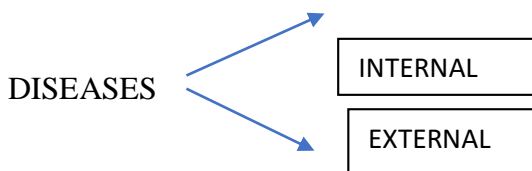
RESULT

- नराणामिव वृक्षाणां वातपित्तकफाद्गदाः
संभवन्ति निरूप्यातः कुर्यात्तद्दोषनाशनम् ॥175

Trees, like men, get diseases through the vitiation of *Vata*, *Pitta* and *Kapha* the three pathological conditions (either in increased or decreased state). One should diagnose the diseases through their symptoms and cure them radically.

- कीटजग्घेग्निसंप्लुष्टे वातभग्नेशनिक्षते ।
वृक्षे छेदोपचारादिपीडिते च पृथक्क्रिया ॥ 176 ॥

When a tree is infested by insects, burnt by fire, broken by storm, struck by thunderbolt-one should cut away the affected parts; but in case of diseases the operation is to be of a different nature.³



INTERNAL ONESVATA

The diseases caused by *Vata* are due to the land that becomes arid on account of excessive supply of dry and pungent matters.

DISEASES:

- The diseases are thinness and crookedness of trunk.
- Appearance of knots on the trunk or leaves.
- The fruit being hard with less juice and less sweetness.

PITTA

The diseases of *Pitta* occur at the end of the summer when the clouds disappear and the trees are excessively watered with materials which are bitter, sour, salty and strong in potency.

DISEASES:

- The diseases are yellowness of leaves.
- Untimely dropping of fruits.
- Dryness.
- Paleness of leaves, flowers, fruits and decay.⁴

KAPHA

The diseases of *Kapha* occurs in winter and in spring if the trees are excessively watered with materials which are sweet, oily, sour or cold.²

DISEASES:

- The diseases are taking long time to bear fruits.
- Paleness.
- Dwarfing of leaves.
- Tastelessness.
- Prematurity of fruits.

MISCELLANEOUS

The imbalance of these elements viz., *Vata*, *Pitta*, *Kapha* develops due to faulty seed, lack of treatment or wrong treatment enhances the disease of jaundice (yellowing). The trees affected by these disease have their trunks, fruits and leaves turned yellow.

EXTERNAL ONES

- The roots are eaten by insects and results in Dryness, yellowness and excessive paleness of leaves.
- Excessive stormy winds cause stress and results in breaking ,uprooting and twisting of the trees. The break is of two types one when the branches remain attached and the other when they fall off.
- The tree dries up due to exposure to fire or lightning, as well us due to aridity of soil and absence of water.
- When struck with an axe, the trees are wounded and results in dryness of all types of trees.
- Fire, wind, friction with other trees, constant existence in shade, inhabitation by too many birds, excessive growth of creepers and growth of weeds nearby-all these destroy the trees.

In this manner, various diseases of the trees should be diagnosed by the above-stated respective indications and treatment should be given.⁴

TREATMENT

VATA

- ✚ Diseases caused by imbalance of *Vata* can be cured by flesh, marrow, and ghee.
- ✚ The sprinkling of *Kunapa Jala* (Traditional liquid organic manure) also removes all the disorders caused by the *Vata*.
- ✚ The diseases of the *Vata* type can be cured by liberal fumigation of the mixture of the fat of the hog, oil of the Gangetic porpoise, ghee, hemp, hair of the horses, and cow's horn-boiled and set to a decoction.

PITTA

- ✚ A wise person should treat all types of trees affected by the *Pitta* type of diseases with cool and sweet substances.
- ✚ Watering the trees with decoction of milk, honey, *Yastimadhu*, and *Madhuka*.
- ✚ Watering with the decoctions of *Triphala*, ghee, and honey.

KAPHA

- ✚ The diseases of the *Kapha* type can be overcome by the bitter, strong, and astringent decoctions made out of *Panchamula* (roots of five plant species-*Sriphala*, *Sarvatobhadra*, *Patala*, *Ganikarika*, and *Syonaka*) with fragrant water.
- ✚ For all *Kapha* type of diseases, the paste of white mustard should be deposited at the root and the trees should be watered with a mixture of sesame and ashes.
- ✚ In case of trees affected by the *Kapha* disease, earth around the roots of the trees should be removed and fresh, dry earth should be replaced for curing them.⁵

KUNAPA JALA:

The excreta, marrow of the bones, flesh, brain and blood of a boar mixed with water and stored underground is called *Kunapa*.

- Method of preparation: - As per the availability the fat, marrow and the flesh of fish, ram, goat and other horned animals should be collected and stored. These should be boiled after mixing with water and the mixture should be stored in an oiled pot after adding sufficient quantity of husk.⁶

EXTERNAL:

INSECTS

- To remove insects both from the roots and branches of the trees, water the trees with cold water for seven days.
- Creepers eaten away by insects should be sprinkled with water mixed with oil cake.
- The insects on the leaves can be destroyed by sprinkling the powder of ashes and brick-dust.
- A wound caused by insects heals if sprinkled with milk after being applied with a mixture of *Vidanga*, Sesame, Cow's urine, Ghee, and Mustard.

WORMS

- The worms can be overcome by the paste of milk, Kunapa water, and cow dung mixed with water and also by smearing the roots with the mixture of white mustard, *Vacha*, *Kushta*, and *Ativisa*.
- The worms accumulated on trees can be treated quickly by smoking the tree with the mixture of white mustard, *Ramatha*, *Vidanga*, *Vacha*, *Usana*, and water mixed with beef, horn of a buffalo, flesh of a pigeon, and the powder of *Bhallataka*.
- Anointing with *Vidanga* mixed with ghee, watering for seven days with salt water, and (applying) ointment made out of beef, white mustard, and sesame destroy the worms, insects, etc.⁵
- कराञ्जारग्वधारिष्टसप्तपर्णात्वचाकृतः ।
उपचारः क्रिमिहरो मूत्रमुस्तविडङ्गवान् ॥ 184 ॥

All kinds of worms are destroyed if one applies to the roots of trees the barks of *Karanja*, *Aragvada*, *Arishta*, *Saptaparna*-pasted in the urine of cows together with *Vidariga* and *Musta*.⁷

FROST OR HEAT

- Trees suffering from (damage due to) frost or scorching heat should be externally covered. Sprinkling with *Kunapa* water and milk is also advisable.
- The broken trees should be smeared with the paste of the bark of *Plaksha* and *Udumbara* mixed with ghee, honey, wine, and milk and the broken parts should be firmly tied together with the rope of a rice stalk.
- Fresh soil should then be filled in the basin around the trees, sprinkled immediately with the milk of buffalo and flooded with water. Thus, they recover.

GENERAL TREATMENTS:

- प्लक्षार्कोदुम्बरत्वग्घृतमधुमधुरोच्छिष्टदुग्धैर्विलिप्तः
स्तम्भैरुत्तम्य रज्ज्वा परिकलितवपुः पूरितः प्लक्षमृद्धिः ।
सिक्तः क्षीरेण भूयो जलभरिततलश्चण्डवातादिभग्नः
स्वस्थोभूत्वाङ्घ्रिपायी कुसुमफलभराण्यातनोति प्रकामम् ॥186॥

One should be smear the branch of a tree broken by wind with the barks of *Plaksha*, *Arka* and *Udumbara* trees pasted in ghee, honey and beeswax mixed with milk; should set it (the broken parts) as before, and tie it to a post fixed nearby, and apply finely powdered earth to the fractured part. And if it be sprinkled with milk over and over again, and (the plant) watered at the root, the tree gets round and produces abundance of flowers and fruits.⁸

- If the branches fall off, the particular spot should be anointed with the mixture of honey and ghee and sprinkled over by milk and water so that the tree will have its branches reaching the sky. If the branches are burnt they should be cut off and the particular spots should be sprinkled with water and milk and smoked with the shells of the crab, etc. Thus, treated the trees will put forth fresh sprouts.
- If the trees are scorched with fire the whole tree should be smeared with mud from the lotus creeper and then should be watered with *Kunapa* mixture. Then its branches grow up to the sky. When anointed with *Vidhari*, Sugar, *Nagajivha* (red arsenic), and Sesame mixed together and when sprinkled with milk-water, trees struck with lightning put forth healthy sprouts.⁹
- असेकतोत्यन्त निषेकतश्च शाखाविशेषं फलिनो निरूप्य ।

सप्ताहमात्रं सूतमेव सर्पिर्विडङ्गदुग्धाम्बु निषेचनीयम् ॥ 190 ॥

When the branches of a tree become dry owing to excess need of water, one should boil *Vidanga*, clarified butter and milk together, and sprinkle the tree with the mixture¹⁰

- Trees which are dried up due to heat caused by fire are cured when a mixture of sugar, sesame, and milk is used for watering and anointing them and when they are smeared all round by the mud from the bottom of a lotus plant.
- If dried due to bad soil, the original soil from the root should be removed and it should be replaced by healthy soil and milk-water should be sprinkled over it.
- If the drying is due to the lack of water, the trees should be watered with milk-water and properly fomented by the smoke of crab shells. The wounds of the trees are healed by the treatment of anointing with the paste of the bark of *Nyagrodha* and *Udumbara*, cow dung, honey, and ghee. The oozing can be cured by the (above stated) paste and by covering the part with the barks of *Dhava*, *Sriparnika*, *Syama*, *Vetasa*, and *Arjuna*.
- Diseases caused by wrong treatment can be conquered by sprinkling the mixture of water and milk and also by applying a paste of *Vidanga* mixed with thick mud.
- Jaundice can be brought under control only in weeks by sprinkling water mixed with the powder of barley and wheat added to honey and milk.
- Non-productive trees bear fruits and flowers to one's complete satisfaction when they are fed with milk and *Kunapa* water. Unproductive trees fill the quarters with branches covered with flowers and fruits without fail if treated with cold mixture of sesame, barley, *Kulattha*, green gram, and black gram.
- Sesame and the dung of the goat and sheep each measuring one *Adhaka* (256 handfuls), barley measuring one *Prastha* (64 handfuls), water measuring one *Drona* (1024 handfuls), and corresponding quantity of beef if allowed to set for seven nights and then used for watering, the trees put forth flowers and fruits. They produce fruits also if watered with the thick mixture of the flesh of tiger, leopard, and fox and with milk of elephant and buffalo.
- Tender plants suffering from excess watering should be scratched with nails, uprooted, and every root should be smeared with the mixture of honey and *Vidanga* and then should be watered. Vegetables of cucumber types get cured of diseases when smoked around by the bones of cow and dog mixed with excreta of cat. Very tender plants should not be exposed to excessive smoking. Excessive smearing, although gentle, also should be avoided by the wise.

Plants which are not cured by any one of the various above-stated remedies should be transplanted at other special sites.⁹

- प्रियङ्गवरकर्करीवेतसार्जुनवल्कलैः ।
क्षीरसिद्धैर्विलिप्तानां स्रावः शाम्यति शाखिनाम् ॥ 194 ॥

Exudation of trees is stopped if one applies to it the barks of *Priyangū*, *Vara*, *Karkari*, *Vetasa* and *Arjuna* pasted with and boiled in milk.¹¹

DISCUSSION:

Vrikshayurveda would promote the sustainable management of medicinal plants which ultimately enhance the quality as well as production of raw material for the production of medicines. Vrikshayurveda literature related to agrotechniques which can be effectively used in the development of medicinal plants. The developments of Vrikshayurveda based techniques are beneficial to improve the viability of the seeds of endangered plant species for better germination and it also give scope to integrate traditional medicine. Understanding the physiology and pathology of plant life similar to that of animal and human life based on the philosophy of ancient Indian system of Panchamahabhuta and its products are clearly described. Various measures for nutrition, prevention of diseases, diagnosis and treatment based on the theory of *Tridosha* has also been seen in this science of plant life. Today we are facing lot of health hazards due to chemical fertilizers and pesticides in human beings and environment. Instead of this we can use *Kunapa jala* as organic manure. Many scientists have carried out extensive research work on *Kunapa jala* with special emphasis on cultivation of medicinal plants. It is needed to validate effectively several ancient practices in the organic production and managing medicinal plant diseases.

CONCLUSION

The scientific knowledge of Vrikshayurveda and its application is very essential to understand various diseases in plants and its management with help of ancient agrotechniques and thus we can overcome the modern technique hazards. So there is a need of research in this field to improve the quality of product. Vrikshayurveda helps man to go back to nature and its ways for a sustainable living.

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