

**VRIKSHAYURVEDA: A BOON TO SUSTAINABLE CULTIVATION PRACTICES**Parul Anand¹, Vd. Bhupesh R Patel²¹Ph.D. Scholar, Dept of Dravyaguna, ITRA (INI), Jamnagar, Gujarat.²HOD, Dept of Dravyaguna, ITRA (INI), Jamnagar, Gujarat.Corresponding Author: anand.parul.mailbox@gmail.com<https://doi.org/10.46607/iamj0610122022>

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**ABSTRACT**

The indiscriminate use of chemical fertilizers nowadays has led to serious health and environmental hazards. *Vrikshayurveda*, a text from the 6th century AD is a unique text which provides detailed knowledge of physiology, pathology, horticulture, and the treatment of plants. Above said text deals with the classification of soil, the biology of trees, and the specific fertilizers that can be used for the cultivation of plants. All the relevant available text was consulted for the study and a narrative review was done. The review revealed that the text deals with various techniques for morphological and functional modifications of plants. Further many methods have been mentioned with regard to how the plants and trees can be saved from torments of adverse weather conditions. Certain herbs upon being rubbed on broken branches help increase the longevity of trees. The text also gives details on the length and pits for plantation and replantation of trees. The present article aims to throw light on the technical knowledge given by *Vrikshayurveda* for the cultivation, care, and protection of plants and in turn human beings.

Keywords: *Vrikshaayurveda*, Environmental hazards, Fertilizers, Organic farming.**INTRODUCTION**

The effect of soil and food on plants in maintaining good health and causing the disease was very clearly understood by our ancestors. It has been stated that just as the human body sustains through the assimi-

lation of the mother's milk and foods, so also plants assimilate food according to the nature of the earth (soil) and water. Like the human system which is well or ill according to the intake of wholesome or

unwholesome foods so also plants grow or decays by the assimilation of suitable and unsuitable food materials. Soil has been stated as the most important factor connected with the nourishment of plants. Cultivation practices have seen a wide change over the years with the introduction of pesticides and chemical fertilizers. Prolonged and over usage of pesticides and chemicals not only renders the soil unfit for further use but also poses great health hazards. The production of pesticides started in India in 1952 with the establishment of a plant for the production of BHC near Calcutta, and India is now the second largest manufacturer of pesticides in Asia after China and ranks twelfth globally¹. The chemical farming methods pose the risk of transfer of chemicals through various routes like dermal, oral, eye, and respiratory pathways². The noxiousness of pesticides can differ depending upon the sort of contact, for example, dermal, oral, or respiratory (inhalation). The pesticides have enormous health hazards including cancers of various sites, respiratory diseases, reproductive disorders, chronic neurodegenerative diseases, liver and kidney ailments, etc. These pesticides are poisonous themselves as well as interact with stressors which include injurious algal blooms. With the abuse of pesticides, a decrease in populations of various fish species is detected.³ The pesticides have a greater impact on oceanic and terrestrial plants, creatures, and birds. Accumulation of pesticides in the food chains is of most prominent worry as it straightforwardly influences the predators and raptors. Spraying of bug sprays, herbicides, and fungicides has additionally been connected to decreases in the number of inhabitants in rare species of animals and birds. Furthermore, their long-term and regular utilization lead to bioaccumulation. Meanwhile, in pre-agricultural times, 20–25% of the bird populations have deteriorated⁴. The concept of organic farming for crops has emerged over recent times in an attempt to minimise the health risks but it is the high time we turn the cultivation practices of Ayurveda herbs as per the concepts of *Vrikshayurveda*. The said text details the processes of seed germination, seed treatment, pit preparation,

specific manures, and other cultivation methods. The text also deals with the characters of plant prakriti, the diagnosis and treatment of plant diseases, and their treatment modalities.

MATERIALS AND METHODS:

Material - All the available material in the name of *Vrikshayurveda*, relevant literature is referred to in *Samhitas*, *Sangraha granthas*, and contemporary literature.

Methodology – Narrative review study

Literature related to the title was explored from all reliable Ayurvedic and Modern journals on the internet. The conclusion has been drawn from the analysis, comparison, and rationale.

RESULT:

Resource books on *Vrikshayurveda*:

Upavana vinod (13th century AD) deals with topics such as the glory of trees, selection of soils for planting various trees, classification of plants, the process involved in sowing of seeds and planting, watering, examination of soils where wells are to be dug, rules for the nourishment of plants, pesticides, and disease management, etc.

Brihat samhita was compiled by *Varahamihira* in 500 AD. The text discusses topics like rain clouds, the science of plants and plant life, winds, an indication of the yield of crops from blooming flowers, vegetable horoscopy, ascertaining the presence of water in a dry region, etc.

Krishi sukthi is a Sanskrit book on agriculture narrated by *Kashyapa*. It contains the description and methodology of paddy cultivation, growing of vegetables, description of the order of eatables things, and description of rules containing information about various oblations. *Amarkosha* is a Sanskrit lexicon (6th century AD) compiled by *Pandit Amarsimha* has chapters like *bhoomi varga*, *vanaushadhi varga*, and *vishya varga* give a comprehensive glimpse of the art of classification of soil, land, implements used, etc. *Krishiparashara* is a Sanskrit work attributed to Saint *Parashara* devoted exclusively to the different agricultural operations. It has stated the principle of “*vrishti mula krishi sar-*

va". This work elaborates on seed collection, preservation, sowing, etc.

The basic structure of the plant

In *Brihad Aranyaka Upanishad* the inner structure of the plant is described as being similar to human anatomy. The body of the plant is compared to the body of a man: hairs to the leaves of plants, skin to the dry external bark, the flesh of the human body to *sakara* (soft tissue next to the skin), nerves to *kinata*/fibrous tissues in *Sakara* as in jute.) both being equally strong. Just as the bones of man lie behind his flesh, so also wood (*daru*), lies behind the *sakara* (and occupies the centre) of plants.

Soil types and the diversity of the drug action

Drugs of purgative nature should be collected from the soils abounding in *Prithvi* and *Jala* qualities, those of emetic nature should be collected from soils where the properties of *Agni*, *Aakash*, and *Vayu* abound; the drugs that cleanse both supra and infra clavicular regions should be collected from where the properties of both abound. Drugs collected in this way become more powerful than those collected otherwise.

Seed treatment and preparation: sweet flag (*Vacha*) is suggested as a fungicide to treat fungoid growth. Rubbing seeds with *Vidanga* and honey is also recommended. Milk, ghee, cow-dung, *Vidanga*, cuscus (*Usheera*), sesame seeds, honey, *Ikshura* seeds, and Indian nightshade (*brihati*) are recommended for special treatment of seeds before they are planted. Irradiation in direct sunlight for five days after soaking the seeds in milk has been specially recommended.

Preparation of the seed pit

A pit one cubit in diameter and two cubits deep is dug. It is filled with water and water. The pit is burnt after it becomes dry. The pit is smeared with a mixture of honey, ghee, and ashes. The pit is then filled with mud to a height of four digits and also filled with the flour of black gram (*maasha*), sesamum (*Tila*), and barley (*yava*); again, mud is filled to the same height (four digits). Then it is filled with flour black gram etc. an infusion of fish and water is poured on this material and pounded till it becomes a

thick mass. The seed is sown at a depth of four digits (*Angula*) and sprinkled with water mixed with fish and animal fat. An excellent sprout can be achieved in this manner.

Treatment of plant diseases

Like the Ayurvedic concept of understanding the anatomical and physiological composition of the human body, plants have also been told to be affected by diseases caused due to vitiated *Vata*, *Pitta*, and *Kapha*.

1. *Vataja* diseases must be treated by irrigation with flesh, fat, tallow, and ghee.
2. Good fumigation with neem, cow horn, horse-hair, ghee, oil prepared from *aconitum ferox*, fat of pig and asparagus, and *pinus deodara* relieves the plant from *Vatika* disorders.
3. Plants are prone to *Pittaja* diseases more in the summer and autumn seasons. Plants affected by *Pittaja* diseases have yellow discoloured leaves, age prematurely, oozing occurs in fruits, and look emaciated. Plants having *Pittaja* diseases should be treated with substances that are cool and sweet in taste. They are watered with decoctions of sweet liquorice (*yashti*), mahua tree, and milk mixed with honey.
4. Diseases caused due to *pitta* are also treated by irrigation with a decoction of *Trifla* mixed with ghee and honey.
5. Plants are more susceptible to *Kaphaja* diseases in winter and spring. Late fruiting, palour, deformity of leaves, slow maturing of fruits, and loss of taste of fruits are some symptoms of *Kaphaja* disease.
6. Plants with *Kaphaja* diseases should be treated with *Panchmoola* and water mixed with *Surabhi* is also indicated. A paste of sugar and mustard is also to be given at the root of the plant and thereafter the plant is irrigated with water mixed with ashes of sesamum.

Treatment of trees affected or stuck by lightning

Nut grass (*Musta*), costus (*kushtha*), liquorice (*yashti*), green gram (*mudga*), black gram (*Masha*), barley (*Yava*), and sesame are ground and made into a liquid along with milk and water. This fluid is con-

stantly used to wet the tree struck by lightning. The tree revives and grows normally.

Treatment for infection

The parasites like *Kandara* are completely removed from the roots of the plants and then watered for seven days. Watering with milk, *Kunapajala*, sweet flag (*vacha*), costus (*kushta*), and Aconite (*visha*) destroy all parasites. Fumigation with white Mustard (*sidhartha*), Asafoetida (*hing*), *Vidanga*, *Vacha*, *Ardhraka*, cows' meat, water, *kapota mamsa* (flesh of *kapota*), *sairibha* horn also helps to remove parasites. *Karanja*, *Aaragwadha*, *lashun*, *Saptaparna*, *Musta*, and *Vidanga* ground in cow urine if applied on the infected part is anti-helminthic.

Treatment for quick sprouting

Treat seeds with *Ankola taila* (oil prepared from the fruit of *Ankola*) many times and sprinkle with the fat of animals. Dry the seeds before sowing. Treat seeds with *Shleshmataka tail* 100 times and water with a solution prepared from animal fats. Make a mixture of the meat of fish and pig and flour of groundnut, rice, and salt. Mix the seeds and keep them for a day before sowing. Soak the seeds in an infusion of powdered paddy, black gram (*Masha*), sesame, and barley. Mix with decomposing meat, then steam with turmeric. Water the seeds of the pomegranate (*Dadima*) many times with *Kukkuta rakta* (blood of cock) and dry them in the sun. fumigate and water with animal fat for quick fruiting. Sow lotus seeds on the ground in which skin etc has been burnt and watered with a solution prepared of meat and fat of animals. A small garden of lotuses will grow. Treat tamarind seeds with a mixture of rice flour, black gram sesame, and wheat along with stale meat. Fumigate with turmeric fumes. This produces a quick sprout.

DISCUSSION

Repeated use of *Tila*, *Masha*, and ghee to ensure good sprouting is again comparable to the ayurvedic approach to human treatment. Ayurveda propounds the use of *Tila oil* and *Masha* for a female who wishes to conceive and the use of *Ghee* and *Masha* for a male who is desirous of offspring. Hence this concept

of the process of germination in plants is comparable to fertilization or conception in human beings. The use of *Tila*, *Masha*, honey, and *Ghee* renders the internal environment conducive to fertilization. Drugs like *Vacha* (*Acorus calamus*), *Katu Tikta* in *Rasa*, *Ushna Virya*, and *Lekhniya* properties have been indicated in seed preparation. The *Lekhniya* property helps in breaking the seedcoat easily and hence will aid in quick seed germination. *Vidanga* (*Embelia ribes*) has *Ruksha* and *Teekshna guna* is *Vishaghna*, *Krimighna*, and *Deepaniya*. The property of *Deepaniya* along with its *Teekshna guna* aids the early breakdown of seedcoat, *Krimighna*, and *Vishaghna* properties helping to fight infections and helping the disease-free germination of the seed. The seed pit has been instructed to be filled with *Yava* (*Hordeum vulgare*), *Tila* (sesame), and *Masha* (*Phaseolus mungo*). *Yava* (*Hordeum vulgare*) being *Lekhna* aids the early germination whereas *Pichhilla guna* of *Yava* helps release the adequate moisture and *ksharatva* needed for the plant to grow and mature. Drugs like *Yashti* and *Mudga* having *Jeevaniya* properties have been mentioned to be used in extreme trauma conditions like lightning where the affected plant needs rejuvenation on the whole. *Masha* has *Vrinhan* property which again is mentioned in extreme traumatic conditions for its rehabilitation property. *Kushtha* being *Vrishya* also helps in the overall regeneration of the plant and hence finds its place in the treatment of trauma in plants. *Ativisha* (*Aconitum heterophyllum*) has been mentioned in the treatment of infections owing to its *Deepana*, *Pachana*, and *Krimighna* properties, as well as being *Katu Tikta* in *Rasa* and *Laghu Ruksha* and *Ushna* in nature. Drugs like *Sarshapa*, *Hing*, and *Lashun* (*Allium sativum*) are mentioned to be used in infections owing to their *Teekshna guna*. Animal products like *Kukkuta rakta* and *Kapota Mamsa* etc have also been mentioned to be used. Meat being reported as a potent nitrogen fixation medium⁵ can be the probable rationale behind using such animal products.

CONCLUSION

It can be summarized that all the drugs which have been instructed for the plants have their pharmacological roles in plants as well as humans. The cultivation using these specific herbs will further potentiate the crops with aided pharmacological properties at the very beginning. Also, it is suggested that the original species should be cultivated rather than the hybrid/developed one's former being already pest resistant and accustomed to the climate of the Indian subcontinent. The unmindful use of pesticides and weedicides inhibits the co-cultivation of the crops and hence removes the properties they used to develop in the co-existence of each other. Not only the crops but medicinal plant cultivation also needs to turn "organic". The cultivation practices of *Vrikshayurveda* will produce food that can halfway replace the medicines because of the withdrawal of the potential risks of pesticides, along with the addition of the actual nutrients in it. Repeated use of pesticides renders the soil unfertile and unfit for further cultivation, and creates further resistance to pests, whereas the Ayurvedic sense of farming will help the soil sustain the crops for generations together. The compiled data urges agriculturists to encourage farm-

ing practices in accordance with the principles of Ayurveda.

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