



A COMPREHENSIVE REVIEW OF PLANT PROPAGATION METHODS IN VRIKSHAYURVEDA

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ABSTRACT

The foundation of Ayurvedic medicine is made up of medicinal plants, whose guans (qualities) and karmas (actions), as detailed in the Samhitas and Nighantus, determine how well a treatment works. However, the diversity of medicinal plants has declined due to a number of factors, including deforestation, unsustainable harvesting, and the growing demand for raw materials. Although chemical-based propagation methods produce rapid results, they jeopardize the phytochemical integrity of plants, ecological balance, and soil health. On the other hand, Vrikshayurveda, a traditional science, provides economical, environmentally friendly, and sustainable plant propagation options. This article examines traditional methods of propagation using seeds, stems, tubers, and transplantation techniques, drawing from classical texts such as the Vrikshayurveda of Surapala, the Vrikshayurveda of Parashar, and the Śārngadhara Paddhati. The techniques discussed focus on stem propagation using organic pastes and ceremonial practices; tuber/root planting aided by natural manures and irrigation schedules; and seed viability treatments using milk, honey, ghee, and herbal formulations. These methods maintain ecological sustainability while strengthening natural disease resistance and improving germination and growth. A route for reviving medicinal plant cultivation that ensures both therapeutic fidelity and environmental resilience is revealed by fusing traditional Vrikshayurvedic practices with contemporary agricultural demands.

KEYWORDS : Vrikshayurveda, Medicinal plants, Propagation techniques, Seed treatment, Stem cutting, Tuber propagation, Sustainable agriculture, Organic farming, Plant conservation**INTRODUCTION:**

Medicinal plants form the foundational basis of Ayurvedic medicine. To attain the therapeutic outcomes as described by the Acharya's, it is essential to utilize plant materials that possess the specific guans (qualities) and karmas (actions) as documented in the Samhita and Nighantus.

According to the IUCN, key drivers of plant species decline include unsustainable harvesting for commercial purposes, rising population demands for plant-derived food and medicine, deforestation driven by economic and infrastructural expansion, shifts in land use due to global trade pressures, and escalating demand for medicinal plant raw materials¹. To address this issue, the cultivation and propagation of medicinal plants should be actively promoted. The process of plant propagation is essentially the reproduction or multiplication of plants from an existing "mother" plant. Its fundamental purpose is to generate additional plants². Many traditional plant propagation techniques tend to be cost-prohibitive and lack economic feasibility and may result in progeny that lack the genetic fidelity and phytochemical consistency of the mother plant. Though chemical deliver rapid and noticeable benefits, their prolonged application can compromise soil integrity, contaminate water systems, and diminish the nutritional as well as therapeutic potency of plants. Therefore, adopting traditional agricultural approaches presents a sustainable alternative to enhance both the productivity and quality of planting materials³. A sustainable solution to this challenge can be found in the traditional science of Vrikshayurveda. Traditional botanical practices, particularly those outlined in ancient texts like Vrikshayurveda, present sustainable and eco-friendly alternatives to chemical-based propagation techniques. Vrikshayurveda mainly consist of Procuring, preserving, treating seeds before planting, preparing pits for planting saplings, Selection of soil, Method of watering, Nourishments and fertilizers, Plant diseases and plant protection from internal and external diseases, remedies, Layout of a garden, Ground water resources Vrikshayurveda highlights various propagation methods using stems, seeds, and tubers that are economical and nature-friendly.

These methods emphasize the use of organic materials, natural growth promoters, and disease-resistant practices, promoting enhanced plant health and productivity. This article aims to review and synthesize these traditional plant propagation techniques from various available Vrikshayurveda text, offering insights into their potential applications in contemporary agriculture.

MATERIALAND METHODS:

1. Vrikshayurveda of Surapala- Shrikrishna Jugnu
2. Sharnghadhara Paddhati of Sharnghadhara

3. Vrikshayurveda in Ancient India. [With Original Texts and Translation] by Lallanji Gopal
4. VRKSHAYURVEDA (Excerpt from Sharnghadhara-Samhita Edited- Prof. S.K. Ramachandra Rao Vrikshayurveda of Parashara

Were thoroughly Reviewed to compile the seed treatments mentioned in Vrikshayurveda.

RESULT AND DISCUSSION:

Vrikshayurveda outlines diverse plant propagation techniques, notably through seeds, stem cuttings, tubers, and transplantation methods.

1) Seed Propagation: -**• Seed viability treatment**

1) Seeds obtained from naturally ripened and fully matured fruits should be treated by sprinkling with milk, followed by drying for five days, and then fumigated using vidanga and Ghrita.

2) Begin by sprinkling the seeds with milk. Next, create a paste using brihati, tila, Bhasma (ash), and ghrita and apply it to the seeds. After coating them, rub the seeds with a mixture of cow dung and clay soil. Finally, fumigate the processed seeds using fat(vasa)

3) Before sowing, seeds are treated by sprinkling with milk, rubbed with cow dung, and drying in the shade. Generously smeared with a mixture of honey and vidanga powder.

4) Seeds are first sprinkled with milk and then dried in shaded conditions. They are subsequently coated with a paste prepared from brihati, sesame (tila), lotus stem (kamalnaala), and ghee—an ideal treatment to enhance germination

5) Fresh seeds of Makand, Jambu, and Panasa should undergo the same treatment as described above to enhance their viability.

6) Treating and drying the seeds of Kshirika and Bakula as described above, followed by trimming their upper ends, improves their viability and promotes better germination.

7) To enhance the viability of Ervaru-Kusmanda seeds, they are enclosed in a leaf-based cylindrical wrap (patraputi), moistened with a jaggery solution, and gently heated for three days. This treatment improves their sowing potential and promotes healthier growth.

8) Seeds sowing: -

a) Large-sized seeds are best planted individually, whereas small or

minute seeds should be scattered in bulk using a dispersal method.

b) Since the seeds of Narnga (*Citrus reticulata* Blanco) naturally exhibit a curved shape, they should be sown in alignment with their natural curvature.

9) Phanijaka Propagation: -

Before sowing, the seeds of phanijaka (*Origanum majorana* Linn.) should be blended with soil. A mixture of cow dung and water is then prepared, which is used to gradually irrigate the sown seeds.

● After Seed Sowing Procedure-

- Once the seeds are sown, the planting area should be covered with grass or a similar protective layer.
- A blend of water and milk should then be sprinkled over the emerging seedlings.
- During this phase, the field must be adequately irrigated to support healthy growth.
- Unwanted weeds and invasive plants should be meticulously removed, and the grass cover lifted to allow the soil to dry thoroughly.

● Effects of Seed Treatment: -

Seeds that undergo proper treatment and storage, as previously outlined, exhibit high viability and are well-suited for planting. Trees grown from such prepared seeds tend to yield plentiful, superior-quality flowers and fruits.

● Seeds Sowing: Ritualistic

- a) To begin, the landowner should bathe, purify himself, and wear clean garments.
- b) He must offer prayers to the deities, pay respects to his guru, and make charitable offerings—such as land or property—to deserving individuals.
- c) Following this, homage should be paid to the goddess of the earth, Vastudevi.
- d) Once this sacred ritual is performed with sincerity and faith, the landowner should personally commence the sowing of seeds or planting activities.
- e) Thereafter, family members and others may be involved in continuing the process and entrusted with planting duties on the farm

2) Stem Propagation

a) Stem Propagation method 1: -

- a) Select a stem or branch and coat it with pulp from naturally ripened Kadali (banana) fruit.
- b) Secure it using a cord made from Shashti rice—a variety known for maturing within sixty days.
- c) Plant the treated stem or twig into a prepared pit.
- d) During the summer season, irrigate it gently using droplet irrigation or small amounts of water at regular intervals.
- e) This propagation technique promotes successful and healthy germination.

b) Stem Propagation method 2: -

- a) A stem or twig (kanda or vruta) measuring 18 anigula in length should be selected, ensuring it is neither too tender nor overly hardened-making it ideal for cutting.
- b) Half of this cutting should be coated with a sufficient amount of cow dung.
- c) The prepared cutting should then be planted in a pit, with three-fourths of its length buried underground.
- d) Irrigation should follow using water blended with fine sand and clay.

● Satapatrika (Rose) Propagation

- a) The basal portion of the stem or branch selected for propagation should be semi-mature.
- b) This propagation is ideally carried out during the month of Kartika, which corresponds to the post-monsoon period.
- c) Following planting, continuous irrigation should be maintained for two months, ensuring the propagated material stays nearly submerged in water throughout this duration.

● Transplantation Of Stem

- a) Once the propagated material develops foliage or becomes leaf-covered within two months, it should be carefully removed and relocated to suitable planting beds.
- b) In the month of Aashaadha, marking the onset of the rainy season, the land and its orientation should be assessed for suitability, and transplantation should be carried out accordingly.

● Dadima and Karvira propagation

- a) Bent branches of Karvira and Dadima are suitable for propagation and should be utilized accordingly.
- b) Cow dung is regarded as the most effective manure for this process.
- c) Regular watering should be maintained for a duration of two months.
- d) Once leaf development begins, a central incision should be made on the branch.

3) Tuber Propagation: -

- a) All tubers and rhizomes should be propagated in pits measuring approximately one hand-span in length, breadth, and depth.
- b) These pits must be filled with a mixture of soil and sand.
- c) For **Kadali (banana) propagation**, the root should be thoroughly coated with cow dung.
- d) The treated root material is then placed into the prepared pits.
- e) After planting, sufficient water should be provided to ensure proper irrigation.

4) Tiny Plants Propagation

- a) small herbs and seedlings should be transplanted during daylight hours, following a specific directional alignment.
- b) Once they reach a certain stage of growth, their roots should be coated with a mixture prepared from honey, lotus stalk, clarified butter (Ghrita), and vidanga powder.
- c) After treatment, the plant material should be reburied in the pit and covered with soil.

5) Large Plants Propagation: -

- a) For propagating large plants, the same transplantation method used for small plants should be applied, with the exception that it must be carried out during pradoshkala—the evening period.
- b) During this propagation or transplantation process, it is essential to recite the prescribed hymn (mantra) as outlined in the relevant verse.

'हे वक्षत्वा मितः स्थानान्नेष्याम्यन्य गुणोत्तरं

तथा सेकं प्रदास्यामि निवृत्ति येन यास्यसि ॥

वृद्धिं यास्य सिल त्वत्वं वज्रा (ज्ञा ?) दंभय वर्जितः

तत्रैव पालयिष्यामि प्रियं पुत्रमिवाचलं ॥

Oh, Vruksh! I will carry you from this place to a better place and I will irrigate you in the manner, so that you will remain ever satisfied. You will grow develop and flourish there; you will not feel there any kind of fear of any storm, and any other hazardous disaster. I will take your care like my beloved son.'

CONCLUSION:

Medicinal plants form the basis of Ayurvedic preparations, and a return to natural agricultural practices is required to ensure the authenticity and quality of the raw materials. Promoting organic plant propagation methods and educating farmers about their benefits are essential to the sustainability of sustainable farming practices and the preservation of traditional healing systems. This approach not only enhances the quality of medicinal plants but also fosters biodiversity and soil health. By integrating these practices into modern agriculture, we can create a harmonious balance between tradition and innovation that benefits both people and the planet.

With its roots in India's ancient agrarian knowledge, the science of Vrikshayurveda provides a comprehensive framework for the propagation of medicinal plants that balances ecological sustainability with therapeutic fidelity. In order to improve seed viability and germination as well as soil health and microbial diversity, the propagation techniques discussed-through seeds, stems, tubers, and transplantation-emphasize the use of organic materials like milk, honey, cow dung, Ghrita, and herbal formulations. Without sacrificing the phytochemical integrity of plants, these methods promote higher quality yields, ecological resilience, and natural disease resistance.

Through the integration of organic agronomy and ritualistic practices, Vrikshayurveda guarantees that cultivation becomes an ecological and spiritual act of preservation. These conventional techniques support sustainable agriculture, environmental preservation, and long-term productivity as opposed to chemical-intensive techniques that endanger biodiversity and soil fertility.

Thus, there is a lot of promise for modern agriculture in re-examining and modifying the propagation methods described in Vrikshayurveda, especially in the preservation and extensive production of therapeutic plants. Connecting this traditional knowledge with contemporary

scientific validation can offer a viable way to protect biodiversity, guarantee the authenticity of treatments, and meet the demands of plant-based medicine around the world.

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