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# The therapeutic potential and traditional uses of desamoolam in ayurvedic medicine

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Desamoolam, a revered formulation in Ayurvedic medicine, consists of a combination of ten roots from diverse medicinal plants. Traditionally used for its potent therapeutic properties, Desamoolam is acclaimed for its efficacy in treating a multitude of ailments, particularly those related to the respiratory and digestive systems. This article delves into the historical significance, phytochemical composition, and pharmacological activities of Desamoolam. Through a comprehensive review of classical Ayurvedic texts and contemporary scientific studies, we explore its anti-inflammatory, antioxidant, analgesic, and immunomodulatory effects. Furthermore, the article examines the synergistic interactions among the constituent herbs and their collective impact on enhancing overall health and well-being. The potential for integrating Desamoolam into modern therapeutic practices is also discussed, highlighting the need for further research to substantiate its clinical efficacy and safety. By bridging traditional knowledge and modern science, this article aims to underscore the enduring relevance of Desamoolam in holistic healthcare.

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**Keywords:** Desamoolam, anti-inflammatory, antioxidant, analgesic, and immunomodulatory.

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### Introduction

Desamoolam, also known as Dashamoola or Dasamoolam, is a revered herbal formulation in Ayurveda, the ancient system of medicine that originated in India over 3,000 years ago. The name "Desamoolam" is derived from Sanskrit, where "Dasa" means ten and "Moolam" means roots, symbolizing a potent blend of ten distinct plant roots. These roots are carefully selected and combined to harness their synergistic therapeutic properties, creating a powerful remedy used for various health conditions. In the holistic tradition of Ayurveda, Desamoolam is renowned for its multifaceted benefits. It is commonly utilized to address respiratory disorders, inflammatory conditions, digestive issues, and general debility. Each of the ten roots contributes unique phytochemicals and pharmacological effects, making Desamoolam a comprehensive and effective treatment. The ten roots typically included in Desamoolam.

1. Bilva (*Aegle marmelos*)
2. Agnimantha (*Premna integrifolia*)
3. Shyonaka (*Oroxylum indicum*)
4. Patala (*Stereospermum suaveolens*)
5. Gambhari (*Gmelina arborea*)
6. Brihati (*Solanum indicum*)
7. Kantakari (*Solanum xanthocarpum*)
8. Shalaparni (*Desmodium gangeticum*)
9. Prishniparni (*Uraria picta*)
10. Gokshura (*Tribulus terrestris*)

These plants are selected not only for their individual medicinal properties but also for their ability to work together to enhance each other's effects. Desamoolam is typically found in various Ayurvedic formulations such as Dashamoola Rasayana, Dashamoola Churna, and Dashamoola Arishtam, among others. Its diverse applications and profound efficacy make it a cornerstone in Ayurvedic treatments, embodying the principles of balance, synergy, and holistic health. This

article delves into the morphological characteristics, phytochemical constituents, and pharmacological importance of the plants that constitute Desamoolam. By understanding these aspects, we can appreciate the depth of knowledge and the sophisticated approach of Ayurveda in promoting health and treating disease. Desamoolam is known for its various medicinal properties, including anti-inflammatory, analgesic, antipyretic, and respiratory benefits. It is commonly used in the treatment of respiratory disorders, fever, inflammatory conditions, and general debility (Chopra *et al.*, 1956) <sup>[7]</sup>. It is often found in various Ayurvedic formulations like Dashamoola Rasayana, Dashamoola Churna, and Dashamoola Arishtam, among others. This blend showcases the principle of synergistic healing. Each root contributes unique phytochemicals and pharmacological properties, creating a comprehensive remedy that addresses a broad spectrum of health conditions.

### Morphological, Phytochemical, and Pharmacological Importance of Plants in Desamoolam

#### 1. Bilva (*Aegle marmelos*)

- **Morphological:** A medium-sized tree with trifoliate leaves, fragrant white flowers, and large, hard-shelled fruits.
- **Phytochemical:** Contains alkaloids, coumarins, flavonoids, and tannins.
- **Pharmacological:** Antidiabetic, anti-inflammatory, antioxidant, and antimicrobial properties. (Narayan and Yadav, 2009, Panda and Kar, 2006) <sup>[20, 22]</sup>.

#### 2. Agnimantha (*Premna integrifolia*)

- **Morphological:** A small tree with simple, ovate leaves, greenish-yellow flowers, and small black fruits.
- **Phytochemical:** Contains iridoid glycosides, flavonoids, and tannins.
- **Pharmacological:** Anti-inflammatory, analgesic, diuretic, and antimicrobial properties (Hang *et al.*, 2008, Gokani *et al.*, 2007) <sup>[12, 11]</sup>.

#### 3. Shyonaka (*Oroxylum indicum*)

- **Morphological:** A deciduous tree with large, bipinnate leaves, bell-shaped flowers, and long, flat pods.
- **Phytochemical:** Contains flavonoids, alkaloids, and glycosides.
- **Pharmacological:** Antioxidant, anti-inflammatory, hepatoprotective, and antitumor properties (Islam, 2010; Kalaivani and Mathew, 2009; Tenpe *et al.*, 2009; Zaveri M., Jain *et al.*, 2007; Khandhar *et al.*, 2006; Joshi *et al.*, 1977) <sup>[13, 15, 33, 39, 16, 14]</sup>.

#### 4. Patala (*Stereospermum suaveolens*)

- **Morphological:** A medium-sized tree with compound leaves, tubular flowers, and long cylindrical capsules.
- **Phytochemical:** Contains flavonoids, alkaloids, and sterols.
- **Pharmacological:** Anti-inflammatory, antioxidant, and hepatoprotective properties. (Balasubramanian *et al.*, 2010, 2009; Meena *et al.*, 2010; Srivastava *et al.*, 2009) <sup>[3, 4, 19, 30]</sup>.

#### 5. Gambhari (*Gmelina arborea*)

- **Morphological:** A fast-growing deciduous tree with simple, ovate leaves, yellow flowers, and drupe-like fruits.
- **Phytochemical:** Contains lignans, flavonoids, and sterols.
- **Pharmacological:** Antioxidant, anti-inflammatory, antimicrobial, and hepatoprotective properties. (Aswala Rohith *et al.*, 2012) <sup>[1]</sup>.

#### 6. Brihati (*Solanum indicum*)

- **Morphological:** A thorny shrub with ovate leaves, purple flowers, and small yellow berries.
- **Phytochemical:** Contains alkaloids, flavonoids, and saponins.
- **Pharmacological:** Anti-inflammatory, analgesic, antipyretic, and antiasthmatic properties. (Deb *et al.*, 2013, Gavimath *et al.*, 2012) <sup>[8, 10]</sup>.

### 7. Kantakari (*Solanum xanthocarpum*)

- **Morphological:** A spiny shrub with ovate leaves, purple flowers, and yellow berries.
- **Phytochemical:** Contains alkaloids, flavonoids, and sterols.
- **Pharmacological:** Anti-inflammatory, bronchodilator, and antiasthmatic properties. (Gavimath *et al.*, 2012, Siddiqui *et al.*, 1983) [10, 29].

### 8. Shalaparni (*Desmodium gangeticum*)

- **Morphological:** A small shrub with trifoliolate leaves, pink or white flowers, and small pods.
- **Phytochemical:** Contains flavonoids, alkaloids, and saponins.
- **Pharmacological:** Anti-inflammatory, immunomodulatory, and hepatoprotective properties. (Vijaya *et al.*, 2011; Niranjana and Tewari, 2008, Dharmani *et al.*, 2005) [36, 21, 9].

### 9. Prishniparni (*Uraria picta*)

- **Morphological:** A herbaceous plant with compound leaves, purple flowers, and small pods.
- **Phytochemical:** Contains flavonoids, alkaloids, and saponins.
- **Pharmacological:** Anti-inflammatory, antioxidant, and immunomodulatory properties. (Rastogi *et al.*, 2011; Rahman *et al.*, 2007) [27, 25].

### 10. Gokshura (*Tribulus terrestris*)

- **Morphological:** A small, prostrate herb with pinnate leaves, yellow flowers, and spiny fruits.
- **Phytochemical:** Contains saponins, flavonoids, and alkaloids.
- **Pharmacological:** Diuretic, aphrodisiac, anti-inflammatory, and hepatoprotective properties. (Raja and Venkataram 2011; Baburao *et al.*, 2009; Usman *et al.*, 2007; Phillips *et al.*, 2006) [26, 2, 35, 24].

### Importance in Ayurveda

- **Holistic Synergy:** The combination of these ten roots is believed to provide a balanced

therapeutic effect, addressing multiple bodily systems and promoting overall health.

- **Respiratory Health:** Commonly used for treating respiratory conditions like asthma, bronchitis, and cough due to their anti-inflammatory and bronchodilator properties.
- **Digestive Aid:** Helps in improving digestion and relieving gastrointestinal issues.
- **Anti-inflammatory:** Effective in treating inflammatory conditions like arthritis and general body pain.
- **Detoxification:** Aids in detoxifying the body and improving liver function.
- **Immunomodulation:** Strengthens the immune system and enhances the body's resistance to infections.

The morphological diversity of these plants, ranging from small herbs to large trees, reflects the vast botanical resources utilized in Ayurveda. Their phytochemical constituents, including alkaloids, flavonoids, saponins, and glycosides, provide the foundation for their therapeutic efficacy. These compounds collectively offer anti-inflammatory, antioxidant, antimicrobial, hepatoprotective, and immunomodulatory benefits (Kirtikar and Basu, 1994; Panghal *et al.*, 2010) [17, 23].

### Respiratory and Anti-inflammatory Benefits

Desamoolam is particularly renowned for its effectiveness in treating respiratory disorders such as asthma, bronchitis, and chronic cough. The anti-inflammatory and bronchodilator properties of plants like Brihati, Kantakari, and Shyonaka help alleviate respiratory distress and improve lung function. These effects are complemented by the antimicrobial properties of Bilva and Agnimantha, which help combat infections and support respiratory health.

### Digestive Health and Detoxification

In the realm of digestive health, Desamoolam plays a crucial role in improving digestion, alleviating gastrointestinal issues, and promoting detoxification. The formulation aids in the proper functioning of the digestive system, reducing symptoms of indigestion, bloating, and

constipation. Additionally, the hepatoprotective properties of Gambhari and Patala contribute to liver health, enhancing the body's natural detoxification processes.

### Anti-inflammatory and Analgesic Properties

The anti-inflammatory and analgesic properties of Desamoolam make it a valuable remedy for managing inflammatory conditions like arthritis, muscle pain, and general body aches. The combined action of anti-inflammatory compounds from various roots helps reduce inflammation, alleviate pain, and improve mobility. This makes Desamoolam an effective natural alternative for managing chronic inflammatory conditions without the adverse effects associated with synthetic drugs.

### Immunomodulation and General Health

One of the most significant benefits of Desamoolam is its ability to modulate the immune system. The immunomodulatory properties of Shalaparni and Prishniparni enhance the body's defense mechanisms, increasing resistance to infections and diseases. This immunomodulatory effect, combined with the overall strengthening properties of the formulation, contributes to general health and well-being, making Desamoolam a holistic tonic for maintaining vitality and longevity.

### Integrative and Holistic Approach

The comprehensive nature of Desamoolam exemplifies the integrative approach of Ayurveda, where multiple plants are combined to address various aspects of health. This holistic methodology not only treats specific ailments but also promotes overall balance and harmony within the body. By addressing the root causes of diseases and enhancing the body's natural healing capabilities, Desamoolam aligns with the Ayurvedic principle of promoting long-term health and wellness.

### Modern Relevance

In today's context, where there is a growing interest in natural and holistic health solutions, Desamoolam holds significant relevance. Its

efficacy in managing chronic conditions, enhancing respiratory health, and supporting the immune system makes it a valuable addition to contemporary health practices. Furthermore, the increasing body of scientific research validating the traditional uses of these plants underscores the potential of Desamoolam as a complementary and alternative medicine.

### Conclusion

In summary, Desamoolam stands as a testament to the enduring wisdom of Ayurveda. Its intricate blend of ten roots offers a wide array of health benefits, addressing respiratory, digestive, inflammatory, and immune-related issues. By harnessing the synergistic power of these plants, Desamoolam provides a holistic and integrative approach to health, promoting balance, vitality, and well-being. As modern science continues to explore and validate these traditional remedies, Desamoolam remains a valuable resource for those seeking natural and effective health solutions.

### References

1. Aswala R, Patel V, Chakraborty M, Kamath JV. *Phytochemical and Pharmacological profile of Gmelina arborea: An overview.* International Research Journal of Pharmacy. 2012;3(2):61-64.
2. Baburao B, Rajyalakshmi G, Venkatesham A, Kiran G, Shyamsunder A, Gangarao B. Anti-inflammatory and antimicrobial activities of methanolic extract of *Tribulus terrestris* Linn plant. Int J Chem Sci. 2009;7:1867-72.
3. Balasubramanian T, Chatterjee TK, Sarkar M, Meena SL. Anti-inflammatory effect of *Stereospermum suaveolens* ethanol extract in rats. Pharm Biol. 2010;48(3):318-23.
4. Balasubramanian T, Lal MS, Sarkar M, Chatterjee TK. Antihyperglycemic and antioxidant activities of medicinal plant *Stereospermum suaveolens* in streptozotocin-induced diabetic rats. J Diet Suppl. 2009;6(3):227-51.
5. Central Council for Research in Ayurveda & Siddha, Department of ISM & H, Ministry of



- Health & Family Welfare (Government of India). *Database on Medicinal Plants Used in Ayurveda*. Vol III, Central Council for Research in Ayurveda & Siddha, Jawaharlal Nehru Bharatiya Chikitsa Avum Homeopathy Anusandhan Bhavan, New Delhi; c2001, p. 217.
6. Charaka Samhita of Agnivesha, elaborated by Charaka and Dridhabala with the Ayurveda, edited by Vaidya Jadavji Trikamji Acharya, Chaukambha Vidyabhawan, Varanasi, Reprint 2000, p. 208-209.
  7. Chopra RN, Nayar SL, Chopra IC. *Glossary of Indian Medicinal Plants*. Publications and Information Directorate, C.S.I.R, New Delhi; c1956.
  8. Deb PK, Das N, Bhakta RGT. Evaluation of *in vitro* antioxidant and anthelmintic activity of *Solanum indicum* Linn. berries. *Indo American Journal of Pharmaceutical Research*. 2013;3(2):4123-30.
  9. Dharmani P, Mishra PK, Maurya R, Chauhan VS, Palit G. *Desmodium gangeticum*: A potent anti-ulcer agent. *Indian Journal of Experimental Biology*. 2005;43:517-21.
  10. Gavimath CC, Kulkarni SM, Raorane CJ, Kalsekar DP, Gavade BG, Ravishankar BE, *et al.* Antibacterial potentials of *Solanum indicum*, *Solanum xanthocarpum* and *Physalis minima*. *International Journal of Pharmaceutical Applications*. 2012;3(4):414-8.
  11. Gokani RH, Lahiri SK, Santani DD, Shah MB. Evaluation of the immunomodulatory activity of *C. phlomidis* and *Premna integrifolia* root. *International Journal of Pharmacology*. 2007;3(4):352-6.
  12. Hang NTB, Key PT, Minh CV, Cuing NX, Thai NP, Kym PV. Study on the chemical constituents of *Premna integrifolia* Linn. *Nat Prod Commun*. 2008;3(9):1449-52.
  13. Islam MK, Eti ZI, Chowdhury JA. *Phytochemical* and antimicrobial analysis on the extract of *Oroxylum indicum* (Linn.) stem bark. *Iranian J Pharma & Therap*. 2010;9(1):25-8.
  14. Joshi KC, Prakash L, Shah RK. Chemical examination of the roots of *Tabebuia rosea*, *Oroxylum indicum*. *Plant Med*. 1977;31:257-8.
  15. Kalaivani T, Mathew L. Phytochemistry and free radical scavenging activities of *Oroxylum indicum*. *Environ We Int J Sci Tech*. 2009;4:45-52.
  16. Khandhar M, Shah M, Santani D, Jain S. Antiulcer activity of the root bark of *Oroxylum indicum* against experimental gastric ulcers. *Pharma Biol*. 2006;44:363-70.
  17. Kirtikar KR, Basu BD. *Indian Medicinal Plants*. Lalith Mohan Basu, 49-Leader Road, Allahabad, India, Edition 2<sup>nd</sup>, 1994;3:1927-9.
  18. Database on Medicinal Plants used in Ayurveda. CCRAS; New Delhi, Vol. 3, Reprint; c2005, p. 256-8.
  19. Meena AK, Yadav AK, Panda P, Preet K, Rao MM. Review on *Stereospermum suaveolens* DC: A potential herb. *Drug Invention Today*. 2010;2(5):238-9.
  20. Narayan P, Yadav CS. Chanotia Phytochemical and pharmacological profile of leaves of *Aegle marmelos* Linn. *The Pharma Review*; c2009 Nov-Dec, p. 144-5.
  21. Niranjan A, Tewari SK. *Phytochemical* composition and antioxidant potential of *Desmodium gangeticum* (Linn.) DC. *Natural Product Radiance*. 2008;7(1):35-9.
  22. Panda S, Kar A. Evaluation of the antithyroid, antioxidative, and antihyperglycemic activity of scopoletin from *Aegle marmelos* leaves in hyperthyroid rats. *Phytother Res*. 2006;20(12):1103-5.
  23. Panghal M, Arya V, Yadav S, Kumar S, Yadav JP. Indigenous knowledge of medicinal plants used by Saperas community of Khetawas, Jhajjar District, Haryana, India. *Journal of Ethnobiology and Ethnomedicine*. 2010;6:4.
  24. Phillips OA, Mathew KT, Oriowo MA. Antihypertensive and vasodilator effects of methanolic and aqueous extracts of *Tribulus terrestris* in rats. *J Ethnopharmacol*. 2006;104:351-5.

25. Rahman MM, Gibbons S, Gray AI. Isoflavanones from *Uraria picta* and their antimicrobial activity. *Phytochemistry*. 2007;68:1692-7.
26. Raja M, Venkataram AR. Pharmacognostical studies on *Tribulus terrestris* and *Tribulus alatus*. *Der Pharmacia Sinica*. 2011;2:136-9.
27. Rastogi C, Paswan SK, Verma P, Vishwakarma V, Srivastava S, Rao CV. Chapter-6 *Uraria picta*: A comprehensive review and its pharmacological action. *Recent Adv Pharm Sci*. 2011;76:93.
28. Reddy, *et al.* The Indian Journal of Pharmacology. E-ISSN: 2348-3962, P-ISSN: 2394-5583. 2007;5(7):426-30.
29. Siddiqui S, Faizi S, Shaheen B. Studies in the chemical constituents of the fresh berries of *Solanum xanthocarpum* Schrad. & Wendle. *Journal of Chemical Society Pakistan*. 1983;5:99-102.
30. Srivastava N, Khatoon S, Rawat AK, Rai V, Mehrotra S. Chromatographic estimation of *p-coumaric acid* and *triacontanol* in an Ayurvedic root drug *patala* (*Stereospermum suaveolens* Roxb.). *Journal of Chromatographic Science*. 2009;47(10):936-9.
31. Sushruta. *Sushruta Samhita, Sutrathana*, edited with Ayurveda-Tattava-Sandipika commentary by Kaviraj Dr. Ambika Dutt Shastri, reprint Edition, Chaukhambha Publications, New Delhi, Adhaya 38/8; c2007, p. 142.
32. The Ayurvedic Pharmacopoeia of India, Part-I, 1st ed. New Delhi: Govt. of India, Ministry of Health and Family Welfare, Department. of I.S.M. & H. 2001;1:59-60.
33. Tenpe CR, Upananlawar A, Burle S, Yeole YG. *In vitro* antioxidant and preliminary hepatoprotective activity of *Oroxylum indicum* (Vent.) leaf extracts. *Pharma Online*. 2009;1:35-43.
34. Tondon N, Sharma M. Quality standards of Indian medicinal plants. Medicinal plants unit, Indian Council of Medical Research. 2010;8:267.
35. Usman H, Abdulrahman F, Ladan A. *Phytochemical* and antimicrobial evaluation of *Tribulus terrestris* L. growing in Nigeria. *Res J Biol Sci*. 2007;2:244-7.
36. Vijaya K, Jegadeesan M, Kavimani S. Studies on *Desmodium gangeticum*: A review. *Journal of Chemical and Pharmaceutical Research*. 2011;3(6):850-5.
37. Yadav D, Tiwari N, Gupta MM. Simultaneous quantification of diterpenoids in *Premna integrifolia* using a validated HPTLC method. *J Sep Sci*. 2011;34:286-91.
38. Yin WG, Li ML, Kang C. Advances in the studies of *Oroxylum indicum*. *Zhongguo Zhong Yao Za Zhi*. 2007;32(19):1965-70.
39. Zaveri M, Jain S. Gastroprotective effects of root bark of *Oroxylum indicum* (Vent.). *J Natural Rem*. 2007;7(2):269-77.