



Research

Formulation and evaluation of antidiarrheal sachet using *Dalbergia sissoo* leaves

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1. Introduction to *Dalbergia sissoo*

Dalbergia sissoo or Indian Rosewood is a plant that has been subjected to significant scientific study due to its diverse phytochemical composition and potential medicinal applications. The primary focus of this study is the anti-diarrhoeal properties of a formulation derived from this plant.

The purpose of this investigation is to combine traditional knowledge with modern scientific methodologies to understand the pharmacological mechanisms at play in *Dalbergia sissoo*. The plant's rich phytochemical profile forms the basis for exploring its potential role in managing diarrhoea. [1]

2. Botanical Description of *Dalbergia sissoo*

Dalbergia sissoo, also known as Indian rosewood or sheesham, is a medium to large-sized deciduous tree belonging to the family Fabaceae. It is native to the Indian subcontinent and is commonly found in the foothills of the Himalayas. [2]

The tree is known for its durability and resistance to termites, making it a valuable resource for timber. Beyond its economic value, *Dalbergia sissoo* also has cultural significance in various regions. [3]



Fig 1- Dalbergia Sissoo Tree



Fig 2- Fruits of D.sissoo



Fig 3- Leaves of D.sissoo

3. Phytochemistry of *Dalbergia sissoo*

The phytochemical profile of *Dalbergia sissoo* encompasses a diverse range of compounds, including flavonoids, tannins, alkaloids, terpenoids and saponins. These compounds contribute to the tree's therapeutic potential, particularly its anti-diarrhoeal activity. [4]

4. Formulation of Powder

The process of formulating a powder dosage from *Dalbergia sissoo* involves several key steps. This includes collection and preparation of leaves, drying, crushing, grinding, and the addition of excipients. [5,6,7]

S. No	Ingredients	Properties	Quantity
1	Sucralose	Sweetening Agent	8mg
2	<i>Dalbergia sissoo</i> powder	API	5mg



Fig 4- Dried Leaves of *Dalbergia sissoo*



Fig 5- Powder



Fig 6- Sucralose

5. Phytochemical Screening

Preliminary quantitative phytochemical investigations of the plant powder reveal the presence of key compounds such as saponins, flavonoids, tannins, alkaloids, and terpenoids. These compounds might be responsible for the anti-diarrhoeal activity of *Dalbergia sissoo*. [8,9,10]

S. No.	Phytoconstituent	Identification test	Result
1	Saponins	Froth Test	Stable froth observed
2	Flavonoids	Shinoda Test	Pink to red color observed
3	Tannins	Ferric Chloride Test	Blue-Black or greenish- black color observed
4	Alkaloids	Dragendorff's Test	Orange-red precipitate formed
5	Phenolic Compounds	Ferric Chloride Test	Color change observed
6	Terpenoids	Salkowski Test	Reddish-brown color in chloroform layer

6. Evaluation of Powder

The prepared powder formulations were evaluated for parameters such as physical appearance, pH, homogeneity, spreadability, and viscosity. The results reveal that the powder has a fine texture and is elegant in appearance, with good solubility and absence of lumps.[11,12,13]

S. NO.	Evaluation Test	Results
1.	Particle Size Distribution	Mean Particle Size :50 μm
		Particle Size Range: 20-80 μm
2.	Powder Flow Properties	Carr Index: 15%
		Hausener Ratio: 1.2
3.	Moisture Content	Moisture Content: 2.5
4.	Bulk Density	Bulk Densit: 0.4g/cm ³
5.	Tapped Density	Tapped Density: 0.5 g/cm ³
6.	Dissolution testing	90% dissolution in 30minutes
7.	Uniformity of dosage units	Uniform drug content within $\pm 5\%$

7. Future Prospects

This study opens avenues for future research and development in the realm of natural medicine. The potential incorporation of *Dalbergia sissoo* powder into the armamentarium of anti-diarrhoeal interventions offers a nature-derived alternative for individuals seeking holistic approaches to gastrointestinal health.[14,15,16]

8. Conclusion

In summary, this study provides valuable insights into the potential of *Dalbergia sissoo* as a natural remedy for managing diarrhoea. While the findings are promising, further research, including clinical studies, is needed to validate the safety and efficacy of the formulated powder dosage. As we navigate the landscape of natural remedies for gastrointestinal ailments, *Dalbergia sissoo* emerges as a promising candidate. This study marks a significant step toward the potential use of *Dalbergia sissoo* for the treatment of diarrhoea, offering a substantial contribution to the evolving landscape of phyto-therapeutics.

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