



Medicinal Expectorant Preparation of *Justicia Adhatoda* by taking leaf extract

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Abstract: Because medicinal herbs have been shown to be safe with little unwanted side effects, especially when compared to synthetic pharmaceuticals, there has been a steady revival of interest in the use of medicinal herbs in poor nations in recent years. Medicinal plants are being studied the most for the treatment of acute and chronic illnesses. The goal of this study is to develop and test an expectorant that will assess the bronchodilator capacity of *Justicia adhatoda*. The maceration procedure was used to remove the leaves of *Justicia adhatoda*. Different methodologies were used to evaluate the plant extracts for in-vitro bronchodilator action. PH, Viscosity, and other physical testing are also performed on the expectorant.

Index Terms - *Justicia Adhatoda*, Maceration, Bronchodilator, Herbal Expectorant.

1. INTRODUCTION:

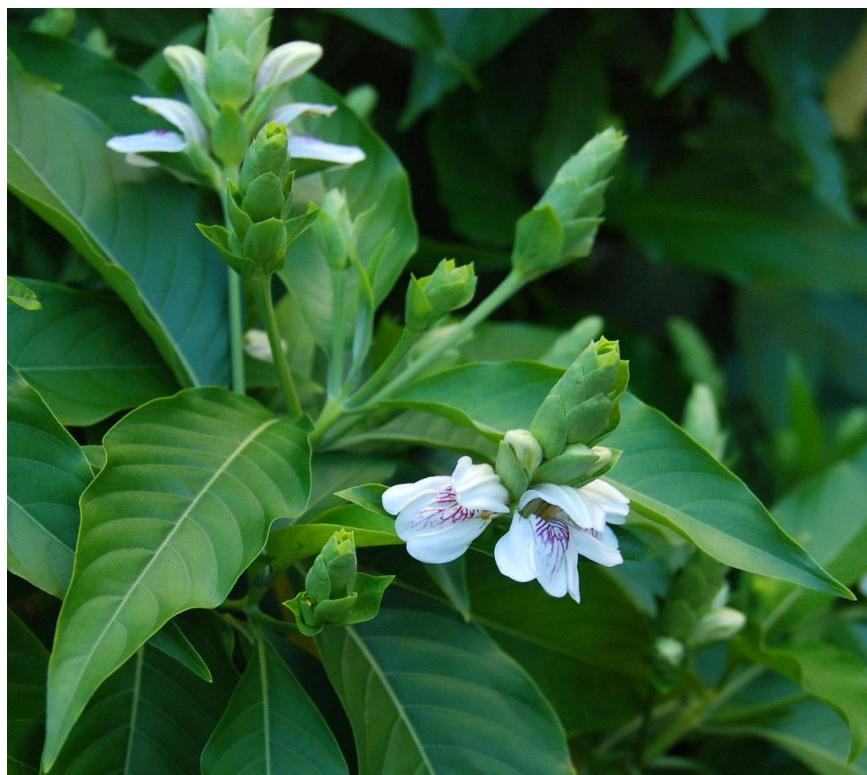
Herbal medicine is the primary source of primary health care for about 75-80% of the world's population, primarily in developing countries. This is due to the widespread perception that herbal medicines have no side effects and are inexpensive and readily available. Traditional medicine (including herbal medications) is described by the World Health Organization as therapeutic approaches that have lasted for centuries before the invention and spread of biomedicine and are now in use today Medicinal plants, minerals, and organic matter, among other things, are used in traditional remedies. Herbal remedies are traditional medicines that primarily treat patients with medicinal plant formulations.¹

In recent times, there has been a gradual resurgence of interest in the use of medicinal herbs in poor nations, owing to reports that herbal therapy is reasonably safe and has fewer adverse side effects than synthetic pharmaceuticals. Extracts of herbal remedies with special medicinal qualities can be used as active compounds in this drug molecule to provide extra benefits. Because of their extensive use and ill-defined benefit/risk ratio, herbal topically applied remedies have gotten a lot of attention. The nature of traditional herbal products is varied. As evidenced by Ayurvedic, India has a long history of herbal therapy, which could not have survived for 2000 years without scientific foundation. Around 1500 plants have been described in ancient writings as having therapeutic properties, and around 800 species have been utilized in traditional medicine.²

Ayurvedic is among the oldest medical systems still in use today, formed from daily living experiences with mankind's relationship with nature. Ayurvedic is made up of two parts: Ayu (Life) and Veda (Science) (knowledge). Although the exact date of the birth of this study of life is unknown, researchers of Ayurvedic and ancient Indian culture place it about 6000 BC. It is considered a toning circulation cleanser and light laxative in Ayurvedic medicine's ancient texts. Individual herbs in the formula are said to provide a variety of different health advantages. Ayurvedic remedies are thought to be less expensive, safer, and have less negative effects.³

1.1 Taxonomic Classification:⁶

- Kingdom - Plantae
- Clade - Tracheophytes
- Clade - Angiosperms
- Clade - Eudicots
- Clade - Asterids
- Order - Lamiales
- Family - Acanthaceae
- Genus - Justicia
- Species - *J. adhatoda*

**1.2 Justicia Adhatoda:¹**

Justicia adhatoda, also known as 'Malabar Nut' in English, 'Adhatoda' in Tamil, 'Vasa' in Telugu, and 'Arusha' in Hindi, is a powerful ayurvedic plant that improves respiratory function. The plant has numerous medicinal characteristics and is an effective treatment for a variety of health problems, including breathing difficulties, coughs, and colds, runny nose, dry mouth, asthma, bronchitis, and many other respiratory infections, clotting disorders, and so on. *Vasaka*, also known as *Adhatoda Vasaka* in botanical terms, is a tall, evergreen herbaceous shrub native to the Indian subcontinent but also found in Nepal, Sri Lanka, Pakistan, Malaysia, Indonesia, and China. Yellow bark, lance-shaped leaves, white and purple flowers, and pubescent club-shaped capsular fruits characterize this plant.

1.2.1 Phytoconstituents Of *Justicia adhatoda*:²

Vasa has a high concentration of bioactive components such as Vasicine, Luteolin, Carotene, *Vasaka*, various quinazoline alkaloids, and essential oils, making it a popular natural expectorant. Photochemical components such as tannins, saponins, alkaloids, flavonoids, and phenolic are abundant in the leaves. The plant is useful for a variety of therapeutic indications, including respiratory tract infections, tuberculosis, heart issues, constipation, nosebleed, dengue, and so on, and is imbued with powerful properties like antitussive, bronchial dilator, anti-microbial, anti-inflammatory, anti-spasmodic, and so on.

2. Expectorant Introduction:³

An expectorant is a type of natural medicine that aids in the removal of mucus from the airway passage of the throat. When people have a cough and mucous, they take this drug . Expectorants thicken mucus and thin the discharge of the airway. Expectorants help coughs come out of the throat more easily and clear the throat.

3. Medicinal Expectorant:³

The active element in pharmaceutical expectorants thins the mucus, making coughing more productive.

4. Materials and Method:**4.1 Chemicals-**

Chemicals of analytical grade were used in the research. 10 percent ethanol, Benzyl alcohol, honey, distilled water, extracts of *Mangifera indica* leaves, *Phyllanthus embelica* seeds, garlic and black pepper seed extract, and extract of *Justicia adhatoda* leaves were among the substances utilized in the study.

4.2 Collection and Authentication of plants parts:

Fresh leaves of *Justicia adhatoda* were taken from their natural environment in the region of Karad, Satara (Maharashtra) in October. *Mangifera indica* leaf plus *Phyllanthus emblica* seeds were taken from Rajarambapu College of Pharmacy's botanical garden in Kasegaon, Sangli (Maharashtra). A food store in Karad given new *Zingiber officinale* roots and honeys (Maharashtra). Black pepper seeds were collected and ground with a grinding mill before being stored in a tightly sealed container.

4.3 Extraction of Crude Drugs:⁵

The extraction of *Justicia adhatoda* leaf was obtained using a Maceration process with a solvent of 10% ethanol. The seeds of *Phyllanthus embelica* were extracted using well-established A grinding mill was used to powder black pepper grains and *Phyllanthus embelica*. Trituration was used to extract *Mangifera indica* leaf and *Zingier officinale* root juice, which was then filtered through a four-layered muslin cloth.



4.4 Formulation Procedure:⁴

Justicia adhatoda extract, which is used as bronchi dilators, was added to Zingiber officinale juice, which has antioxidant activity, after which Mangifera Indica leaves extract, which aids digestion, was added to the following formulation, after which 0.250mg fine powder of black pepper, which is useful in the treatment of asthma and bronchitis, and 0.100mg Phyllanthus Embelica seedlings powder extract have been added to the solution.



Fig: Expectorant filled in well closed container

5. Formulation Table:⁴

1. *Justicia adhatoda*- 0.6ml

2. *Zingiber officinale*- 1ml

3. *Phyllanthus emblica*- 0.100mg

4. Black pepper- 0.250mg

5. *Mangifera indica*-0.100mg

6. Benzyl alcohol- Q.S

7. Honey- Q.S.

8. 10% ethanol-Q.S.

5.1 Test of Expectorants:⁶

- **Ph** - 3.5 to 5.5
- **Viscosity** – 2000-3000 centipoises(cps)
- **Solubility** – Soluble in aqueous medium
- **Test**- Test was found slightly bitter
- **Sedimentation**- Slow sedimentation rate

6. Conclusion-

In this article, the numerous benefits of Adhatoda vasica in treating different throat illnesses are briefly discussed. The current study will aid in the treatment of some throat disorders by focusing on the discovery and development of new medicinal agents as well as agro-industries derived from natural products obtained from plants.

To relieve cough, the Justicia adhatoda Expectorant is created, tested, and utilized.

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