



Maharukh: A Really Plant of Heaven

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Abstract

Over the last decade, herbal medicine has become an item of novel importance, with both medicinal and economic implications. Widespread use of herbs throughout the globe has raised serious concerns over their quality, safety and efficacy. Thus, accurate scientific assessment has become a prerequisite for acceptance of herbal health claims. *Ailanthus excelsa* Roxb is a tree, found to central and southern India, which belongs to family Simaroubaceae is widely used in Ayurveda. Maharukh belonging to the family Simaroubaceae, is native from South East Asia, to north Australia, and is popularly known as tree of heaven. The traditional claims, phytochemical investigation and pharmacological evaluation and some Aurvedic formulation provide the backbone to make this tree as a plant of heaven. Maharukh has been identified as one of the important multipurpose tree specie by all India coordinated research project on agro forestry. It is one of the priority species for the safety matches industry in Tamilnadu. Its fast growth adaptation ability to high density planting, ready market and substantial revenue is likely to make it an attractive species to farmer. The desirable characteristics are fast-growth, good tree form, high yield and resistance to pest, disease and drought. The promising Maharukh clone can be popularized in farmland to meet the industrial demand in sustainable manner. Emerging evidences also suggest that search is still continue for harnessing active compound from nature in combating human illness and it also lead the path to search out new active natural and novel semi synthetic or synthetic compound.

Key words: Arlu, *Ailanthus Excelsa* Roxb, Maharukh, Simaroubaceae, Alkoloide, Lignins

Introduction

In most of developing countries, a large number of populations depend on traditional practitioner, who is dependent on medicinal plant to meet their primary health care needs. Increasing interest has forced researcher to screen scientifically various traditional claims. There is need for screening the traditional claim because this is scientific era and every one wants the scientific support before using the traditional drugs. So presently both common user and health care professionals seek updated, alterative information towards safety and efficiency of any recommended medicinal plants as a drug prior to its use. Maharukh is commonly known as Mahanimb. It is originally from China and called as *Ailanthus Excelsa*, a large tree, tree of Heaven. Different parts of this plant are used widely in traditional medicine for a variety of diseases¹. The bark is used as bitter, refrigerant, astringent, appetizer, anthilmentic, febrifuge, in dysentery, earache, skin disease, troubles of rectum, and fever due to tridosha allay thirst. It is also used in gout



rheumatism, dyspepsia, bronchitis and asthma. In aurveda it is used to remove the bad test of mouth²⁻³. It is used to cure wounds and skin eruption as mentioned in traditional medicine⁴. The root bark has been reported to possess cytotoxic and antitumor activity both in mice and in cell. Stem bark extract showed potent antibiotic and antifungal activities⁶, the alcohol extract from leaf and stem bark exhibit remarkably high antiplantation and early abortifacient activity⁷. A recent study reveal that ethanol extract of Maharukh leaves have a significant hepatoprotective effect on Experimental liver damage in rats⁸ and antibiotic activity⁹. The extract of leaves¹⁰⁻¹⁵ containing alkaloids, glycosides, lignin, phenol, sterols and tannis.

Classical names: Araluka, Aralu, Katvanga, Deerghavrinta

Vernicular names:

Sanskrit: Madala, Dirghavrinta, Assam: Aralu, Hindi: Maharukh, Mahanimb, Gujrat: Adusa, Arduri, Karnatak: Doddamaru, dodumani, Maharashtra: Mahanimb, Maharukh

Plant Structure

It is a large deciduous tree, 20-28 m tall ; trunk straight 60-80 cm in diameter ; bark light gray brown and rough on large trees; aromatic slightly bitter. Leaves alternate, pennately compound, large 28-58 cm or more in length ; leaflets 10-16 or more pair, long stalked, ovate or broadly lanced shaped from very unequal base , 8-20/80 cm long, 3-5 cm wide, often curved long pointed , hairy gland,; edges coarsely toothed and often lobed. Flower cluster lobed at leaf base , shorter than leaves , much branched ; flowers many , mostly male and female on different trees, shorter stalked, greenish yellow; calyx 5 lobed; 5 narrow petals spreading 6 mm across; stamens 10; on other flowers , 2-5 separate pistils, each with elliptical ovary, 1 ovule and slender type. Fruit 1 seeded samara, lanced shaped, flat pointed at ends, 5 cm long, 1 cm wide, copper red, strongly veined, twisted at the base. The generic name Ailanthus came from ailaanthos [tree of heaven].

Material and Methods

The leaves were dried in the shaded area and powered using mixer grinder, and subjected to soxhlet extraction with petroleum ether, 85% ethanol and distilled water for sixteen-eighteen hours in the order of increasing polarity of solvents. The condensed extract were used for preliminary screening of photochemical such as alkaloids, glycosides, lignins , phenol, sterols, tannis these are

Test for Alkaloids

Test for iodine: 5 ml of extract and few drops of iodine solution. Blue colors appear; it disappears on boiling and reappears on cooling, indicates presence of alkaloids.

Wagner's test : In 4-5 ml extract with few drops Wagners reagent. Formation of reddish brown precipitate indicates the presence of alkaloids.



Test For Glycoside

Keller Kilani test : In 2-3 ml of extract , add glacial acetic acid , one drop of 5 % FeCl_3 and concentrated sulphuric acid. Reddish brown color appears at junction of the two liquid layers and upper layer appears bluish green indicates the presence of glycoside.

Concentrated sulphuric acid test: Add 4 ml of glacial acid in 10 ml extract with one-two drops of 5 % FeCl_3 and concentrated sulphuric acid. Brown ring appears and it indicates the presence of glycosides.

Test for Lignins

Labat test: the test solution was mixed with gallic acid ; it develops olive green color indicates the presence of Lignin.

Test for phenol

Phenol test: when 0.5 ml of FeCl_3 solution was added to 2 ml of test solution, formation of an intense color indicate the presence of phenol.

Test for sterols

Liebermann –Burchard test: mix 2 ml extract with chloroform, add 1-2ml acetic unhydride and 2 drops of concentrated sulphuric acid from the side of the test. First red then blue and finally green indicated the presence of sterols.

Test for Tannis

Gelatin test: to the extract, Geletin solution was added, theformation of white precipitate indicates the presence of Tannis.

Conclusion

In the present review we have made an attempt to explore andproved the maximum information about the plant Maharukh i.e. classical names, plant structure, different tests for confirmation of Alkoloids,Glycosides, Lignins, Phenol, Sterols and Taninns.the extract and purified fraction of Maharukh were strong plant growth inhibitor, therefore could be consider as effective and environmentally safe agricultural pesticides. Plant leaves are very useful for treatment for different types of diseases. It would be Novel source of drug for human health. Quantitative analysis of photochemical of this plant leaves and also the antifungal and antimicrobial activities should be investigated.

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