



ADATHODA A VIABLE ECONOMICAL AND MEDICINAL PLANT OF JHARKHAND

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Agriculture is one of the strongholds of the Indian economy and accounts for 14.6 per cent of the country's gross domestic product (GDP) and about 10.23 per cent (Provisional) of the total exports. The total geographical area of India is 325.7 million hectares of which 140.3 million hectare is net sown area, while 193.7 million hectare is the gross cropped area, (Annual report 2017-18) Ministry of Agriculture. The state of Jharkhand as well has a large chunk of population dependent upon agriculture for sustenance. The major agriculture products include rice, wheat, oilseed, cotton, jute, tea, sugar cane, potatoes, cattle, water buffalo, sheep, goats, poultry and fish. However as majority of the cultivable area is rainfed agriculture practices is generally restricted during the months of July to February till the water bodies sustain the farming. Also traditional crops like cereals, pulses and vegetables in Jharkhand are not very profitable for the farmers. As such they should go in for unconventional farming practices. Cultivation of medicinal plants has been very profitable in developed Indian states of Karnataka, Andhra Pradesh, Kerela, Uttar Pradesh, Madhya Pradesh etc. Jharkhand also can pick up threads here and encourage medicinal plant cultivation. The climate and soil here is conducive for the growth of a very useful medicinal and economic plants such as Justicia adathoda a drought resistant shrub.

INTRODUCTION

Since the time he appeared on this planet, man has been dependent on plants for many of his needs including his primary requirements of food to keep himself alive. To early man goes the credit for identifying certain plants as being suitable for his purpose; by domesticating and cultivating these, he initiated the beginnings of agriculture. Agriculture, in turn, made a settled life possible, and the growth and development of civilization. As human demands increased, more and more species were inducted into the service of mankind, and the list of economic plants today is astonishingly large.

Advances in science and technology have enabled plant explorers to reach areas at one time considered absolutely inaccessible. At the same time, remarkable additions to our knowledge of plants by scientists working in a number of disciplines, and the progress in methods of assaying species and varieties for their possible value in agriculture, medicine, industry, etc., enlarged the scope for utilization of economic plants. All this has led to an ever-widening search for plants which have potential for human exploitation, and the development of new and elegant methods for assessing them. However, the pace of modern development has been so rapid that many regions of the world have suffered severe degradation or even loss of the natural storehouse of old-land races of crop plants and their wild relatives, in addition of course to wild plants themselves. This serious erosion of genetic resources of so much potential significance for the present and the future generations has begun to arouse world-wide concern.

India has been blessed by Nature with one of the richest floras on earth, and is the centre of origin of a number of cultivated plants. But this, as in other parts of the world, has been severely damaged and diminished by rapid industrialisation and urbanisation, and the wholesale and reckless destruction of our forests which are reservoirs of a very rich plant and animal life. In some areas like the mountains and hilly tracts of north-eastern India, and Western Ghats and the Nilgiris, many plant species have still to be collected, identified and assayed for their possible use to satisfy the ever-increasing and diversifying demands of modern society.

Adathoda popularly called as Vasaka is a common shrub which is often gregarious in Jharkhand. They are usually grown as hedge plants to fend off foral cattle in the villages. It is a hardly, drought resistant and easy to grow hedge plant. Villagers also use them extensively for various medicinal needs. It's our endeavour here to study in detail this popular plant of this region so that it can be exploited for economic prosperity of the farmers. The price of Vasaka derivations in market ranges for ` 100 - ` 500/20 gms medical shops.

Description of The Plant

Justicia adhatoda L. Sp. Pl. 15. 1753; Stearn in J. Arnold Arbor. 52:640. 1971.

Adhatoda zeylanica Medic. Hist. & Commentat. Acad. Elect. Sci. Theod.-Palat. 6:393. 1790.

A. vasica Nees in Wall. Pl. As. Rar. 3:103. 1832; C.B.Cl. in Hook. f. Fl. Brit. India 4:540. 1885; Haines, Bot. Bihar Orissa 2:694 (728). 1922; Gamble, Fl. Madras 2:1082 (758). 1924.

Vasak, Basango, Basak (O); Bakas, Vasaka (Beng.); Arusha, Adulasa (H); Addasaram, Adasaram, Vasa (T).

Shrub, 1-2 m. Leaves large, elliptic, elliptic-lanceolate or ovate-lanceolate, 12-20 cm long, acuminate, minutely pubescent, base cuneate; petiole 1.8-3 cm long. Flowers white, subsessile, large, 2.5-3 cm long; bracts ovate; elliptic, or obovate, 1.8 cm long or the lower up to 2.5 x 1.5 cm, acute; bracteoles subsimilar, 1.2 cm long. Calyx 0.7-1.2 cm, lobes 5, equal, lanceolate, imbricate or lowest subconnate. Corolla 2-lipped, tube short, upper lip galeate, subentire, lower spreading 3-lobed. Stamens 2, near top of corolla-tube; filaments hairy at base only; anther-cells entire. Capsule clavate-oblong, 1.8 cm long, pubescent, with a long solid base. Seeds 1-2, suborbicular, compressed, rugose.

Often found in or near villages; sometimes planted in hedges. Fl. & Fr. : June-February.

Distribution: Throughout the plains of India and subtropical Himalaya. Myanmar, Sri Lanka, Malay Peninsula, Indo-China (Saxena and Brahman, 1995).

MATERIAL AND METHOD

A thorough survey of villages in and around Ramgarh, Jharkhand was carried out in the year 2017-18. *A. vasica* was located at various places and the flowers (Material) was collected and herbarium prepared. It was identified by the referring to old and new floras (Hains, 1922).

Chemical Composition

A. vasica is a source of quinoxaline alkaloids-vasicolin, adhatodine, vacicolinone, and anisotine. It contains betaine, vasicinone and new alkaloid vasicine (1%); in addition B-sitosterol and tritriacontane in different parts. Leaves, vasicine (0.79%); and flowering tops, 0.47%. Peganine (vasinine) - the chief active principle in quinoxaline alkaloids yield from different leaf samples from India, 0.54 to 1.11% dry weight basis while in foreign samples it is high as 2.18% Adhatodic acid. Alcoholic extract of leaves is useful as hypotensive, bronchodilator, respiratory stimulant, hypoglycaemic and antispasmodic. Oil from leaves, flowers and roots is active against *Tubercule bacilli*. Essential oil from leaves is bronchodilator, also vasicinone and ephedrine, potentiated; anti-insect and juvenile hormone mimicking activity.

Parts used : Roots, leaves and flowers.

Ayurvedic Properties

Rasa - Tikta-kasaya. Virya - Sita.

Guna - Laghu, Ruksha. Vipaka - Katu. (Joshi, 200)

वासको वात.त्वर्यं कफपित्तास्त्रनाशनः।

तिक्तजतुपीकरे हृद्यो लघु शीतस्तृडति.त्।

श्वासकासज्वरच्छर्दि मेघकुष्ठक्षयापहः॥ (भा.प्र.)

Vasako vatakrtsvayam kaphapittasranasanah,

Tiktastuvarako hradyo laghu sitastsudartikrt,

Svasakasajvaracchardi meghakusthaksyapahah. (Bhavaprakasa)

वासयां विद्यमानायां आशायां जीवितस्मय।

रक्तपित्ती क्षयी कासी श्वासी किमवसीदति॥ (वृन्दमाधव)

Vasayam vidyamanayam asayam jivitasayaca,

Raktapittiki ksayi kasi svasi kimavasidati. (Vrindamadhava)

Actions/Uses: Kaphaghna, Pittaghna, Vatakar.

Therapeutics

Vasaka is a reputed remedy for all sorts of cough and cold, bronchitis and other respiratory disorders due to its expectorant action. It is the main constituent of cough syrup "Adulsa syrup". Plant is bitter, astringent, diuretic, antispasmodic, expectorant and alterative. It cures vomiting, thirst, dermatosis, jaundice, fever, phthisis and haematemesis. It is particularly useful in fevers associated with bilious and respiratory troubles and also in piles. Roots are expectorant and mild bronchial antiseptic; given in intermittent fever, pulmonary and catarrhal affections. Leaves and roots are hypoglycaemic. Juice of leaves relieves cough by its soothing action on nerves and by liquefying sputum. Fresh leaf juice is beneficial in haemoptysis and menorrhagia. Leaves are useful against Ranikhet disease virus. In haemoptysis is a grand remedy. Leaves and wood ashes mixed with honey are used for cough and asthma. Juice of leaves mixed with juice of *Feronia limonica* cures nose bleeding. A preparation of leaves in clarified butter is used for glandular tumors. Crude extract is more useful for respiratory ailments. Flowers and roots with ginger are given in ague, rheumatism, constipation, asthma, chronic bronchitis and other chest affections. Shoots are used in liver enlargement. It is one of the constituents of drug "Geriforte" used against senile pruritus and as antifatigue. 'Justica rubrum or Rakta vasaka' is not so common as *A. vasica* but is more largely found in Coochabehar and Darjeeling. It is used in all those complaints and ailments in which generally *A. vasica* is used. But its usefulness and efficacy are more sure and certain where there is more blood with the cough and where there is more expectoration or bloody vomiting in tuberculosis. A bedddomer C B. Clarke is a variety found in Kerala which is more powerful and active than *A. vasica* Nees. and is used as antiemetic, antiechic, haemostatic, particularly in haemorrhages (Joshi, 2000; Singh et. al., 1966).

CONCLUSION

One of the most common crisis found by most of the farmers is lack of infrastructure seed money and proper training of latest agricultural practices. The method of farming and choice of crops

are still ancient which effect the production and yields of crops. In fact poverty, ignorance and immobility to use modern farming technique go hand in hand with our farmer. Cultivation of new alternative and highly profitable medicinal plants such as that of Adathoda will go a long way in alleviating their financial vows.

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