

ETHNOMEDICINAL SIGNIFICANCE OF TWO IMPORTANT SHRUBS, *VIZ Withania somnifera* (L.) AND *Datura metal* (L.) (FAMILY SOLANACEAE) OF CHHATTISGARH, INDIA

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ABSTRACT

The two medicinal shrubs, commonly found in Chhattisgarh are *Withania somnifera* (L.) and *Datura metal* (L.), both belonging to the family Solanaceae. These plants, besides having important characteristic features, are commonly used by the natives for their varied pharmacological/biological activities and hence for medicinal purposes. The present work reviews the important characteristics and medicinal uses of the two species of the family Solanaceae, that are common occurrence in the state of Chhattisgarh, India.

KEYWORDS: Medicinal shrubs, Ethnomedicinal uses, Biological actions

Nature has nourished and nurtured the basic needs of human beings since ages, providing food, shelter, clothing and medicines too. Plants have been the major part of the traditional medicinal systems since thousands of years, and still continue to provide mankind with new remedies. The medicinal properties of the plants is attributed to the presence of certain phytochemical in the plants itself, because of which they are popularly called 'Medicinal plants'. Such plants and their plant-parts have been the immediate relief of pain, wounds, and inflammation as according to the belief of tribal and ethnic groups. Natural and plant products are used as the best chemotherapeutic agents and hence the important constituents of herbal and modern medicines (Qarawi *et al.*, 2006).

The well known family, Solanaceae, is known to have some members that are medicinally important. *Withania somnifera*, commonly known as Ashgandh, Ashwagandha, Sagunn, or Akri, is a small or medium under-shrub with erect, branching perennials, with long, woody tuberous roots. The plant is covered with very small, fine, silver-grey colored, branched hairs. Its flowers are small, greenish cymes, and fruits are round hairless berry. The other shrub, *Datura metal*, is an erect, succulent annual shrub with branched axillary cyme, with large flowers, usually greenish white, but purplish outside. Fruits are spinescent capsules, covered all over with numerous fleshy prickles. The natives, commonly use the names such as Dhatura or Kala-dhatura. Both the plants are well known for their important features and

ethnomedicinal uses (Sander *et al.*, 2015; Chatterjee *et al.*, 2010; Dyer; 2004).

METHODOLOGY

The plants of *Withania somnifera* and *Datura metal* are commonly growing plants in many areas of Chhattisgarh. The different tribal people use these medicinal plants for curing of different ailments. The periodic interactions and interviews with the ethnic tribes, and their knowledge carried down the line, generation after generation orally or through practices, authenticated the ethnomedicinal uses of the two shrubs.

Important Characteristics

The medicinal plants, Ashwagandha and Dhatura, belonging to the family Solanaceae, exhibits important characteristic features. *Withania somnifera* has roots with strong disagreeable odour like horse's urine due to which it is also called 'bad-smelling bush'. Its leaves also have strong smell, that of green tomatoes (Rasool & Varalakshmi, 2006). The leaves and roasted roots, are hence used as insect and snake repellents. The leaves and roots are used to induce abortion. The plant parts of *Datura metal* are quite poisonous, although they have the potential to improve health. It also functions as an insect repellent.

Ethnomedicinal Uses

Therapeutic Uses of *Withania somnifera*

- Roots are used to treat sexual and general weakness.
- Root powder is effective against headache.

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- Roots are also beneficial in pregnancy care.
- Rheumatism, debility and ageing are cured with treatment with roots.
- Pounded roots are used I n medicine against ringworm.
- Gonorrhoea or upset stomach can be cured by drinking root decoction.
- Root decoction is effective against fever and disturbed sleep in children.
- Dried and grounded leaves, either as dry powder or paste are used in the treatment of burns and wounds.
- The ointment prepared from the leaves are beneficial when applied to wounds and bed sores.
- Ash of the leaves is rubbed in to treat ulcers.
- Leaves are useful in purifying blood.
- General body pain is relieved through leaves when given as purgative.
- Haemorrhoids, abscesses and smallpox could be treated with leaf or root powder when boiled with fat.
- Poultice made from the fresh leaves and roots are good remedy when applied to rheumatic limbs.
- Preparations from leaves or roots are useful to treat poorly healing open wounds.
- Fruits, stems and leaves in the form of paste are used to treat rashes and injuries due to belts.
- The plant as a whole is used in the treatment of tuberculosis, nervousness, insomnia and hiccups.
- The plant parts are effective in improving overall physical and mental health.

Therapeutic uses of *Datura metal*

- Herb is very useful in the treatment of epilepsy, insanity and hysteria.
- The plant is effective in relieving the spasm of bronchitis and asthma, when used internally.
- Leaves are used as powerful drug for mind-alerting and sharp memory.
- Leaves are helpful in alleviating joint pains.
- Guinea worm disease can be cured with the leaves.
- Dhatura leaves are good for the treatment of asthma.
- Heart problems, hypertension, distress and aortic complaints are relieved with leaf infusion.
- Leaf oil of Dhatura is useful to treat ear-ache and ear infections.
- Dhaturaseeds are a good remedy in treatment of impotency and helpful for enhanced sexual functions.
- Stomach and intestinal disorders are relieved with seed-treatment.

- Seeds are effective in growth of hair and also in treatment of baldness.
- Dhatura fruit is burnt, and it is effective to cure malarial fever.
- Juice of fruit when applied to scalp treats hair-fall and dandruff.
- Plant poultice is useful to treat wounds, abscesses and fistula.
- Plant parts are beneficial in curing lumbago, sciatica and painful swellings.
- Herb is useful to stimulate easy milk flow from the breast of newly delivered mother.
- Dhatura seeds are taken orally, in consultation with medicinal experts, is useful for chronic respiratory disorders and anxiety.
- Uterine stimulation is encouraged with Dhatura herb, and it is also a very good CNS stimulant.

DISCUSSION AND CONCLUSION

The plant of *Withania somnifera* is an important medicinal plant, and its medicinal uses are common amongst the ethnic tribes of Chhattisgarh, even though it is a bad-smelling plant. *Datura metal* also grows wild in many fields or open ground in areas of Chhattisgarh. Dhatura, in spite of being a poisonous plant, is medicinally used by the tribal natives. Despite their repellent properties, Ashwagandha and Dhatura plant, have rich chemical constituents that attribute to their medicinal value. Apart from the basic phytochemicals, the other chemical compounds present in them are of great importance. Some of the important ones are sugars, glycosides, alkaloids, phenolic compounds, tannins, flavonoids, allantoin, steroids, calcium, iron, various amino acids, proteins, fibers, and essential oils. The characteristic compounds of Ashwagandha are withanoloids and withanol, and that of Dhatura are daturadiol.

The phytochemicals and their specific properties lead to many biological actions, that contribute in enhancing the medicinal values of the plants, Ashwagandha and Dhatura. Their properties of being anti-inflammatory, anti-bacterial, anti-cancerous, anti-microbial, anti-septic, anti-spasmodic and anti-oxidant are some of the most significant ones. Besides these, Ashwagandha is known to be abortifacient, and Dhatura is narcotic, anaesthetic and sedative. The potential of phytochemicals and their biological activities, make *Withania somnifera* and

Datura metel, rich in their ethnomedicinal uses (Gerber *et al.*,2006; Strahil *et al.*,2006).

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