



Some medicinally important plants: A review

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Abstract

In today's modern era, man suffers from many minor ailments, for the treatment of which he consumes many allopathic medicines. Many chemicals are used to make these allopathic medicines, which are harmful if taken for a long time. Many of the chemicals that are useful in the diagnosis of diseases are found in many plants and there is no harm in using them, in the present time, has found useful chemicals from many plants. Some such plants are discussed in the present paper.

Keywords: Allopathic medicines, plants, phytochemical analysis

Introduction

Each substance has special properties. Acharya Priyavrata Sharma defined Dravya Guna Shashtra as the branch which deals with the property action and therapeutic effect of various Dravyas (drugs). Some plants have chemical properties, which removes the disease of the body, at the same time gives strength to the body by removing the weakness of the body. It also increases immunity in the body by removing internal toxins. Until the 18th century, the therapeutic properties of many plants, their effect on the human organism and their method of treatment were known, but the active compound was unknown^[16]. The origin of modern science, especially in the Renaissance, in particular chemical analysis, and the associated instrumentation such as the microscope, was what made it possible to isolate the active principles of medical plants. The use of medicines was gradually expanded. Until today, the direct use of medicinal plants is apparently displaced in modern medicine.^[17]

Information about some plants with chemical properties and its uses are described here.

Chemical properties and medicinal value of various plants

1. *Withania somnifera* (L.) Dunal

Common name: Ashwagandha

Plant Family: Solanaceae

Habit: An erect branched under shrub, covered with stellate ashy-tomentum.

Leaves: Ovate or ovate-lanceolate, apex obtuse, base rounded, ashy tomentose on both sides, petiolate.

Inflorescence: Umbellate cymes.

Flowers

- Yellowish-green, about 5 together.
- Calyx small with 5 deltoid sepals.
- Corolla valvate, bell-shaped, small, lobes 5.
- Stamens 5, epipetalous.
- Ovary 2-celled, stigma bifid.

Fruits: Berry red, enclosed in the inflated calyx, seeds yellow discoid, minutely foveolate.

Flowering and Fruiting Time: September – November

Chemical constituents: The constituents included flavonoids, phenolic acids, alkaloids, and Terpenoids were reported.

Medicinal Value

- Relieves Stress and Anxiety- Ashwagandha is perhaps best known for its stress-relieving properties.
- Lowers Blood Sugar and Fat.
- Increases Muscle and Strength.
- Improves Sexual Function in Women.
- Boosts Fertility and Testosterone Levels in Men
- Sharpens Focus and Memory
- Supports Heart Health.

2. *Phyllanthus emblica* L.

Botanical Name: *Phyllanthus emblica* L.

Common Name: Indian Goose Berry, Amla

Plant Family: Euphorbiaceae

Habit: A small, deciduous tree.

Leaves: Small, distichous, linear, obtuse, appear like pinnate leaves, stipule ovate, acute.

Flowers

- Greenish-yellow, in axillary fascicles, on leaf-bearing branches, often on the naked portion below the leaves, with fimbriate bracts at base.
- Male flowers many on short, slender pedicels, sepals 6, oblong.
- Stamens 3 on a short central column, disk 0. Female flowers few, sub sessile, sepals 6, disk cup-like.
- Ovary 3-celled, styles 3, bifid.

Fruits: Fleshy, globose, with 6 obscure, vertical furrows, pale yellow, of three 2-seeded crustaceous cocci.

Flowering and Fruiting Time: February - May

Chemical constituents

- 13 compounds were isolated and identified as Triacontanol, Triacantanoic acid-Amyrin ketone, Betulonic acid, Daucosterol, Lupeol acetate, β -Amyrin-3-palmitate, Gallic acid, Betulinic acid, Ursolic acid, Oleanolic acid, Quercetin and Rutin.^[2]

Medicinal Value

- Consumption of fresh fruit daily (1-2 numbers) increases immunity and provides rejuvenating effect.
- Fresh juice of *Amla* (5-10ml) mixed with sugar can be taken in bleeding disorders.
- Fresh juice of *Amla* (5-10 ml) mixed with a pinch of turmeric powder and taken empty stomach is beneficial in Diabetic patients.
- Intake of *Amla churna* (3-6 g) mixed with honey helps in restoration of vision.
- External application of *Amla* paste on scalp promotes health and lustre of hair.

3. Terminalia arjuna (Roxb) W. & A.

Botanical Name: *Terminalia arjuna* (Roxb) W. & A.

Common Name: Arjun Sadad, Arjun Tree

Plant Family: Combretaceae

Plant Form: Tree

Habit: A large tree with white bark.

Leaves: Subopposite, ovate-oblong, obtuse, cordate, oblique at base, coriaceous, petioles with 2 glands at the top beneath the blade.

Inflorescence: Axillary spikes.

Flowers

- Sessile, bracteoles minute
- Calyx campanulate, teeth small
- Ovary glabrous.
- Disk densely yellowish-hairy
- Stamens much exerted

Fruit: Samara with 5, thick, narrow, striated truncate wings.

Flowering and Fruiting Time: April–May

Chemical constituents

The chemical constituents of Arjuna present in root bark stem bark, leaves, seeds and fruits. Root contains triterpenoids and glycosides, fruit contains triterpenoids and flavonoids, Leaves and seeds contain flavonoids and glycosides. But bark is considered most important constituent from medicinal point because it contains flavonoids, glycosides, polyphenols, tannins, triterpenoids, saponins, sterols and minerals such as calcium, magnesium, zinc, copper, amino acids also [4, 5]. Bark had 34% ash content consisting entirely of pure calcium carbonate.

Medicinal Value

- Arjuna is beneficial in the management of chest pain (angina). Studies suggest that the bark of Arjuna shows a significant reduction in chest pain by lowering the level of cortisol i.e., the stress hormone. Arjuna also increases exercise tolerance, improves HDL levels and reduces blood pressure in people with stable angina [6]

4. Mucuna pruriens (L.) DC.

Botanical Name: *Mucuna pruriens* (L.) DC.

Common Name: Kaucha, Velvet Bean, Cowitch, Cowhage, Kapikachu

Plant Family: Papilionaceae

Plant Form: Climber

Habit: A twiner.

Leaves: 3-foliolate, silky, stipules lanceolate, leaflets rhomboid-ovate, oblique, mucronate.

Flowers: Flowers in 6-30 flowered racemes, bracts lanceolate, calyx campanulate, corolla purple, stamens 10.

Fruit: Pods turgid, curved like letter 'S' at both ends, covered with persistent irritant hairs, 5-6 seeded.

Flowering and Fruiting Time: August - December

Chemical constituents

- This legume has a high content of lipids, minerals, carbohydrates, fiber as well as amino acids. In order to improve the nutritional status of this bean, several types of *Mucuna* that have been developed as nourishment in numerous parts of the world according to the nutritional thickness of the beans [7].
- The *Mucuna* composition ranges between 42.79 and 64.88% crude carbohydrate, 4.1 and 14.39% crude lipid, 5.3 and 11.5% crude fiber, and 2.9 and 5.5% ash content [8].
- *Mucuna* beans are rich in minerals, particularly potassium (806-270 mg/100 g), magnesium (85-477mg/100g.), calcium (104-900mg/100g), iron (1.315mg/100g), sodium (470mg/100g), phosphorus(98-498mg/100g), copper (0.334-34mg/100g), zinc(1-15mg/100g) and manganese (0.56-9.26mg/100g) [9]

Medicinal value

- Increase in the mounting frequency, ejaculation latency and decrease in the mounting latency, post-ejaculatory interval and interintromission interval [10] Reduced the blood glucose levels [11] *Mucuna pruriens* is utilized as a key ingredient in marketable tablets for curing infertility and is found to have a positive effect on treatment. It is known to augment the sperm count and motility, along with the enhanced conversion of spermatocytes to sperm [12]

5. Tinospora cordifolia (Willd) Miers

Botanical Name: *Tinospora cordifolia* (Willd.) Miers

Common Name: Gado, Gulbel, Indian Tinospora

Plant Family: Menispermaceae

Plant Form: Climber

Habit: An extensive climber with corky, grooved bark with adventitious aerial roots.

Leaves: Thin 7-nerved, cordate with a broad sinus, venis reticulate, petiole long.

Inflorescence: A raceme, longer than the leaves, axillary, terminal or from the old wood

Flowers

- Yellow, the male fascicled, the female usually solitary
- Flowers appear when the plant is without leaves, pedicels slender, bracts lanceolate, the lower sometimes foliaceous
- Male flowers with sepals 3, outer small, ovate-oblong, acute, the 3 inner large, thin, sub-orbicular, concave.
- Petals 6, each loosely embracing a stamen, claw wedge-shaped, limb trilobed and reflexed at the apex, stamens 6, free
- Female flowers petals wedge-shaped, oblong with entire margins
- Ovaries 3, stigma forked.

Fruit: A drupe, 1-3 convex, flat, red. Seeds thin and concave convex like a watch-glass.

Flowering and Fruiting Time: April - May

Chemical constituents

- The chemical constituents of *T. cordifolia* belong to different classes such as alkaloids, glycosides, steroids, phenolics, aliphatic compounds, polysaccharides; leaves are rich in protein (11.2%), calcium and phosphorus. [13] The stem contains clerodane furono diterpene glucoside (amritoside A, B, C, and D) and the structure has been established by different spectroscopic studies. [14]

Medicinal Value: *Tinospora cordifolia* has an importance in traditional Ayurvedic medicine used for ages in the treatment of fever, jaundice, chronic diarrhea, cancer, dysentery, bone fracture, pain, asthma, skin disease, poisonous insect, snake bite, eye disorders. [15]

6. *Tribulus terrestris* L.

Botanical Name: *Tribulus terrestris* L.

Common Name: Gokhru

Plant Family: Zygophyllaceae

Plant Form: Herb

Habit: A procumbent herb, at times sub-erect.

Leaves: Abruptly pinnate, leaflets 3-6 pairs, often the leaflets of any pair slightly unequal, more or less hairy.

Flower: Yellow in colour.

Fruits: Muriculate, hairy, each of the 5 cocci armed with 2 pairs of sharp hard spines.

Flowering and Fruiting Time: August - November

Chemical constituents: The preliminary phytochemical study of TT revealed the presence of saponins, flavonoids, glycosides, alkaloids, and tannins. [18]. Kostova *et al.* studied the chemistry and bioactivity of saponins in TT. They reported that furostanol and spirostanol saponins of tigogenin, neotigogenin, gitogenin, neogitogenin, hecogenin, neohecogenin, diosgenin, and chlorogenin, ruscogenin, and sarsasapogenin types are frequently found in this plant. In addition, four sulfated saponins of tigogenin and diosgenin type were also isolated. Majorly present are furostanol glycosides including protodioscin and protogracillin, of which protodioscin is the most dominant saponin and spirostanol glycosides are present in small quantities. [19, 20]

Medicinal uses: TT is used in folk medicines as a tonic, aphrodisiac, palliative, astringent, stomachic, antihypertensive, diuretic, lithotriptic, and urinary disinfectant. The dried fruit of the herb is very effective in most of the genitourinary tract disorders. It is a vital constituent of *Gokshuradi Guggul*, a potent Ayurvedic medicine used to support proper functioning of the genitourinary tract and to remove the urinary stones. TT has been used for centuries in Ayurveda to treat impotence, venereal diseases, and sexual debility. In Bulgaria, the plant is used as a folk medicine for treating impotence. In addition to all these applications, the Ayurvedic Pharmacopoeia of India attributes cardiogenic properties to the root and fruit. In traditional Chinese medicine, the fruits were used for treatment of eye trouble, edema, abdominal distension,

emission, morbid leukorrhoea, and sexual dysfunction. TT is described as a highly valuable drug in the Shern-Nong Pharmacopoeia (the oldest known pharmacological work in China) in restoring the depressed liver, for treatment of fullness in the chest, mastitis, flatulence, acute conjunctivitis, headache, and vitiligo. In Unani medicine, TT is used as diuretic, mild laxative, and general tonic. [21]

Conclusion

In the present time, there has been a significant increase in the cases of certain diseases like hypertension, diabetes, blood pressure, chest pain, for which patients spend a lot of money on allopathic medicines. In ancient times such diseases were treated with herbs. Even in today's time there are such plants which we can use in such diseases. Like Ashwagandha for Hypertension, Amla to control diabetes, Arjuna mat for chest pain, Gokharu for certain diseases related to urine, we can use herbs like Giloy for diseases like fever, cough which reduces the side effects.

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