

A REVIEW ON *RICINUS COMMUNIS* LINNGuptaNeelam¹, SinghA.K²¹JR III, Deptt. Of Dravyaguna, Faculty of Ayurveda, I.M.S. B.H.U
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ABSTRACT

In the last few decades there has been an exponential growth in the field of Herbal medicine. One such medicinal plant is *Ricinus communis*, family Euphorbiaceae, which is commonly known as castor plant. It is a small tree which is found all over the India. All parts of plants are important viz Root bark, leaves, flowers, seeds, root, oil etc. The *Ricinus communis* has high traditional and medicinal value for maintain the disease free life. Traditionally the plant is used as laxative, purgative, fertilizer and fungicide etc. The plant is reported to possess antioxidant, anti-implantation, anti-inflammatory, antidiabetic, central analgesic, antitumor, larvicidal & adult emergence inhibition, antinociceptive and antiasthmatic activity. This activity of the plant possesses due to the important phytochemical constituents like flavonoids, glycosides, alkaloids and steroids etc.

Keywords: *Ricinus communis*, Antidiabetic, Phytochemical, Flavanoids, phytochemical.

INTRODUCTION

Plant kingdoms are the rich source of organic compounds, many of which have been used for medicinal purposes. In traditional medicine, there are many natural crude drugs that have the potential to treat many diseases and disorders one of them is *Ricinus communis*, family: Euphorbiaceae popularly known as castor plant. Synonyms are *Gandharvahas-ta*, *Vatari*, *Panchangula*, *Chitra*, *Urubuka*⁽¹⁾ etc. Assam (*Eda*, *Era*), Beng. (*Bherenda*), English. (Castor oil plant), Guj. (*Erando*, *Erand*), Hindi. (*Arand*, *Erand*, *Andi*), Kan. (*Haralu*, *Oudala*, *Gida*), Kash. (*Aran*, *Banangir*), Mal. (*Avanakku*), Mar. (*Erand*), Ori. (*Jada*, *Gaba*), Punjab (*Arind*), amil. (*Amanakku*), Tel. (*Amudapuveru*), Urdu (*Bedanjir*, *Arand*).⁽²⁾

Botanical description: The Eranda (*Ricinus communis* Linn.) is a tall glabrous glaucous branched shrub of almost a small tree, 2-4 m. high, in the stem and branches green when

young but turning gray and getting covered with thin greyish brown dark, when mature. **Leaves:** Alternate, long-petiolate, stipulate, Peltate palmately veined, broad, nearly orbicular, five to ten or more lobed; lobes membranous, oblong to linear, acute or acuminate, gland serrated. The numbers of lobes correspond to the number of veins. Those towards the base are shorter while the upper ones are longer and border. They vary from 4 to 20 cm in length. They are nearly cylindrical or slightly flattened above especially towards the distal ends and are peltately attached to the blade, the place of attachment being very near to the base. A number of saucer shaped glands 1 to 2 mm. in diameter are present on the petiole-to prominent glands occur close together at the tip of the petiole, three or four about the middle and 5 to 7 at the base. **Inflorescences:** Stout erect subpanicled racemes that terminate in the main axis and branches. Flowers very large monoecious-

petalous. The Staminate flowers are usually located in the distal or upper leaf of the inflorescence in a crowded manner and Pistillate flowers large, perianthspathaceous, ovary superior, three chambered with one ovule in each chamber. Styles three, short or long spreading often very large and brightly or lightly coloured, entire, two fid or two partite. Stigmas feathery or papillose. **Fruit:** A globose or globular-oblong explosively dehiscent three seeded capsule 1.2 to 2 cm. long, septicidally dehiscent or splitting into three two-valved cocci. The fruit when young is green and usually covered with short or long fleshy prickles. **Seeds:** Carunculate, oblong, 1 to 1.5 cm long, with smooth hard mottled crustaceous testa and oily or fleshy endosperm. Embryo thin, with flat broad cotyledons. **Root:** The tap root gives off profuse branches; branches are straight, tortuous at the end, grayish brown in colour and become lighter on drying. Dry root breaks with a granular fracture. Entire root surface bears longitudinal corrugations unit at their end. The corrugations are long and appear running parallel in the case of young roots but are quite separate and convergent an old roots. Well develops lenticels occur irregularly on old roots. They are globular on younger parts getting elongated on older regions. Secondary thickening results in the formations of annual growth rings. The colour of the cut end is light cream and hence is easily distinguished from the external surface of the root. **Root Bark:** The drug occurs generally in thin curved pieces, 4 to 7 mm thick while a few pieces from upper portion of the root are much thicker. Outer surface is light dirty yellowish brown with fine longitudinal wrinkles. Scares are present due to the removal of rootlets. At some place the cork exfoliates leaving lighter patches. Inner surface is light yellowish brown and somewhat smooth. Fracture is soft and fracture is slightly fibrous. Odour is not characteristic and taste is slightly astringent.⁽³⁾

Habitat: '*Ricinus communis*' is considered probably a native of tropical Africa. It is found

throughout the hotter parts of India, from sea level to about 1000-2000 meters altitude, in the scrubby jungles of outer Himalayas, cultivated in the fields and gardens and also frequently found run wild (naturalized) near habitations by roadsides and waste land, together with the undoubted antiquity of the knowledge of Its use as a drug, as revealed by saĒskrit literature are held to point to its being a native of India as well as Africa it is said to be under cultivation from ancient time in both these areas.⁽³⁾

Cultivation: Climate: It can be grown even at high altitude up to 2000 meters and intact perennial types are said to do best altitude above 850 meters. The plant can withstand dry arid climates, as also heavy rains and floods; it is however, susceptible to damage by frost. **Soil:** Eranda is generally grown on sandy or clay of deep red loams and on good light alluvial loams. Like Horse gram (*Dolichos biflorus*) castor is one of the crops which can be grown economically even on gravelly and poor soils. Deep black cotton soil are not usually employed for castor nor are very fertile soils with high nitrogen content as they produce excessive vegetative growth, it is also grown under irrigation and as a abide or border crop to ginger, turmeric, sugarcane etc. **Season:** In general, it is shown in June-July or some-times latter in September-October. In Gujarata the perennial types are grown during "Kharif" and the annual types during "Rabi" season.⁽³⁾

Taxonomical classification:

Kingdom: Plantae

Order: Malpighiales

Family: Euphorbiaceae

Sub Family: Acalyphoideae

Tribe: Acalypheae

Sub Tribe: Riciniinae

Genus: *Ricinus*

Species: *Communis*⁽⁴⁾

Reported phytoconstituents:

Leaves-Disaccharide glycoside rutin, gentistic acid, quercetin, and gallic acid are determined in the dried leaves of *R. communis* L. by using

capillary electrophoresis with amperometric detection. Flavonoids (kaempferol-3-O-beta-d-rutinoside and kaempferol-3-O-beta-d-xylopyranoid) and tannins have been isolated from the leaves. **Seeds**-Seeds contain three toxic proteins Ricin A, B and C and one ricinus agglutinin. Indole-3-acetic acid has been extracted from the roots. **Fruit**-The pericarp of the fruits of *R. communis* contain alkaloid, ricinine. Cell free extract of seedling of castor bean produce a mixture of five diterpene hydrocarbon ent-kaur-ene, ent-beyerene [(+)-stachene], ent-trachylobane, ent-sandaracopimaradiene, casbene (anti-fungal).⁽⁵⁾

Ethanobotanical uses of Eranda:

It is Dutt, 1877 who first time mentioned in his material medica of the Hindus that the root of *Ricinus communis* and the oil obtained from the seeds have been used in medicine by the Hindus from a very remote period. They are mentioned by SuDruta. From this it can be presumed that the use of castor oil was known and the plant may probably be cultivated in India many centuries before the Christian era. **Seeds:** A poultice of the crushed seeds is used to reduce gouty and rheumatic swellings and inflammation of the breasts of women during lactation. **Root bark:** The root bark is used as a purgative and alternative in chronic enlargements and skin diseases. **Root:** Roots are administered in the form of a decoction and in the form of a paste for toothache. **Leaves:** Leaves are also used in the form of a poultice or fomentation on sores, boils and swellings. Leaves coated with oil and warmed are commonly applied over the abdomen to give relief in flatulence in children. Fresh juice of the leaves is used as an emetic in poisoning by narcotics like opium. Leaves are considered lactagogue and are applied as poultice over the breasts or taken internally in the form of juice (Nadkarni 1954). An infusion of the leaves is used as lotion for the eye. Crushed leaves are said to give relief in caries and are applied over guinea-worm. **Castor oil:** The castor oil is used in

medicine as a cathartic in treatment of acute diarrhoea caused by any form of food poisoning. Castor oil is often given orally. It is also used as an abortifacient and ricinoleic acid present is used in contraceptive jellies and creams. It is also applied externally as emollient in seborrheic dermatitis and other cutaneous infections (Anon. 1972).⁽³⁾

REPORTED PHARMACOLOGICAL ACTIVITY Anti-microbial and anti-fungal⁽⁶⁾, Antioxidant activity⁽⁷⁾, Anti-Implantation activity⁽⁸⁾, Anti-Inflammatory and free radical scavenging activity⁽⁹⁾, Central analgesic activity⁽¹⁰⁾, Antitumour activity⁽¹¹⁾, Larvicidal and Adult emergence inhibition activity⁽¹²⁾, Anti-asthmatic activity⁽¹³⁾, Antifertility activity^(14,15), Bone Regeneration Activity⁽¹⁵⁾, Anti diabetic activity⁽¹⁶⁾, Cytotoxic Activity⁽¹⁷⁾, Antihistaminic activity⁽¹⁸⁾, In vitro immunomodulatory activity⁽¹⁹⁾, Hepatoprotective activity⁽²⁰⁾, Wound healing activity⁽²¹⁾, Lipolytic activity⁽²²⁾, Antiulcer activity⁽²³⁾, Antinociceptive activity⁽²⁴⁾.

CONCLUSION

R. communis natural plant of India. It is useful for various herbal formulations as Anti-inflammatory, Analgesic, Antiasthmatic, Nervine tonic, Purgative, Appetiser and Antipyretic etc. It has various pharmacological actions some of them are reported above. So it may be concluded that *R. communis* a very important indigenous medicinal plant which required more exploration to utilize its medicinal property.

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