



Review Article

A NOVEL REVIEW ON *ERYTHRINA VARIEGATA*

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ABSTRACT

Medicinal plants are nature's gift to human society to make disease free healthy life. More than thousand medicinal plants are recognised in our country. The present review is therefore an effort to give a detail survey of the literature on its phytopharmacological properties of *Erythrina variegata* belonging to the family Fabaceae, which is a shrub with prickly stems; it is a wild growing forest plant in India. Majorly popular system of medicine like Ayurveda, Siddha, Unani and homeopathy. Various plant parts such as bark, root, fruits and leaves are used in treatment of fever, astringent, febrifuge, skin diseases etc.

Keywords: *Erythrina variegata*, Fabaceae, Haematological parameters, Green medicine.

INTRODUCTION

Medicinal plants are majorly an important therapeutic aid for alleviating the ailments of human kind. The current widespread and strong belief about the plant derived drugs is that "Green medicine" is safe and more dependable than the costly synthetic drugs due to their adverse side effects.

Description

The genus *Erythrina* comprises majorly comprises of about 110 species of trees. Here, the name "coral tree" is used as a collective term for these plants. *Erythrina variegata* is a medium sized deciduous small tree having prickly stems and branches, leaves having triangular leaflets and with large coral red flowers.

Majorly grows over Bangladesh and almost spread widely throughout India. It has been worked as a folk medicine in the tropical and sub-tropical regions; it is known to possess pharmacological activities. This most attractive type of plant is majorly grown for its variegated leaves and also for its showy red flowers. This is a fast growing plant, grows up to 50-60 feet tall and having green and yellow leaves about 6 inches long, during spring season this coral tree is decorated with showy red blossoms of 2.5 inches, which are arranged in dense, 6 inches long racemes. These blooms are followed by 12 inch long red/brown seed pods which contain poisonous seeds.

Erythrina generally is a Greek word "Eruthros" which means red and it shows red species^{1,2}.

Telugu : Badisa, Baditha, Kalyana murungi
Kingdom: Plantae
(unranked): Angiosperms
Class: Magnoliopsida – Dicotyledons
Order: Fabales
Family: Fabaceae
Subfamily: Papilionoideae
Genus: *Erythrina*

Species: *variegata*

Morphology

Plant height: 50 – 60 feet
Plant type: Thorny tree
Stem type: Soft, smooth, prickly stem
Leaf type : Trifoliate (6 inches)
Leaf color: Green
Flower : Dark red (2.5 inches)
Odour : Pungent
Bark : Brownish grey

Uses

Erythrina variegata is used as a wind break and shade tree with in common plants.

The bark of the plant is astringent, febrifuge, antibilious and antihelmintic. This is also used in ophthalmic and various skin diseases, nervine sedative, febrifuge, anti-asthmatic and anti epileptic.

The leaves are used in fever, inflammation and joint pain. They have a potential use in the prevention of postmenopausal bone loss. It is also known to possess pharmacological activities including anti-microbial, anti bacterial effects.

The juice of the leaves is mixed with honey and ingested to kill tapeworm, round worm and threadworm. It is also useful in ophthalmic and skin diseases^{2,3}.

Chemical constituents

The bark and root of *Erythrina variegata* Linn showed the presence of carbohydrates, glycosides, proteins, volatile oils and tannins. The plant is a rich source of alkaloids (2.5%). In this flavanoids are chemical phenyl benzopyrones, usually conjugated with sugars are

present in all vascular plants. Isoflavanoids are reported to be major phytoconstituents in stem and bark.

Seeds yield an alkaloid, a fatty oil, and a saponaceous glucoside. The alkaloid has properties identical to hypaphorine⁴.

Leaves and bark yield a poisonous alkaloid, erythrine, which acts on the nervous system with effects similar to the alkaloid cytisine. Bark, leaves and seeds yield saponin. Hydrocyanic acid is found in the leaves, stems, roots, and fruit. Phytochemical screening yielded eight spiroamine alkaloids and 3 carboxylated indole-3-alkylamines. Dried bark yields erythraline, hypaphorine, amino acids, organic acids, erythrine, saponins^{5,6}.

Pharmacological actions

Anti Rheumatoid arthritis assay

The aqueous and ethanolic extracts of leaves of *Erythrina variegata* have been evaluated for the pharmacological studies by suspended in 4% v/v Tween 80. Both the extracts at the two different concentrations (256,500/kg body weight / oral once a day for 21 days) marked reduced swelling of the paw and bodyweight during secondary lesions. The EEEV is significantly higher. Finally WBC count. Together for the first time our studies have established the anti-arthritis potential of *Erythrina variegata* leaves extract^{7,8}.

Anti microbial activity

The various extracts of *Erythrina variegata* were analysed against nine bacterial pathogens. Such as *salmonella typhi*, *pseudomonas putida*, *pseudomonas aeruginosa*, *E.coli*, *Klebsiella sp*, *Proteus sp*, *Serratia marcescens*, *Bacillus circulans*, *staphylococcus aureus* and *five fungal pathogens*, Viz *Asperigillus niger*, *Asperigillus fumigatus*, *Sclerotium sp*, *Rhizopus sp*, *Candida sp*. All strains are more susceptible strains. Among all the solvents methanol showed promising anti microbial activity. These finally have potential for use in the treatment of diseases caused by these test organisms⁹.

Anti angiogenetic activity

Three anthranoids were isolated from an alternaria Sp. Endophytic fungus is been evaluated for their anti angiogenic activity in a rat aortic sprouting assay, an *ex-vivo* model of angiogenesis of these three compounds alter solanol was further characterised and found to show the activity in *ex-vivo*, *in-vitro* and *in-vivo* angiogenesis assays. The *in-vitro* model, the angiogenic effect of these was found in three main functions of endothelial cells, namely proliferation, tube formation and migration^{10,11}.

Anti bacterial activity

The roots of *Erythrina variegata* were macerated with acetone. The chloroform soluble fraction of the residue was subjected to repeated silica gel column chromatography structures were isolated by elution with various solvents. Erycristagallin and orientanol B showed the highest anti MRSA activity^{12,13}.

Anti convulsant activity

The chloroform extract of the root and bark of *Erythrina variegata* was been evaluated. The pentylenetetrazole and the maximal electric shock models were used for assessing the anticonvulsant effects of bark and root in mice and rats. Here, chloroform extract shows the onset of seizures compared with the control group in mice. Finally, it indicates that the chloroform root and bark extract of *Erythrina variegata* may be beneficial in both absence and tonic clonic seizures^{14,15}.

Diuretic activity

The chloroform and ethanol extract of *Erythrina variegata* was evaluated for the diuretic activity. The animals were divided into five groups deprived of food and water for 18 hours and the extracts were given to the animals (5 groups) according to their body weight the total volume of urine and the urine concentration of Na⁺, K⁺ and Cl⁻ the Na⁺ and K⁺ were measured by β ame photometry^{16,17}.

CONCLUSION

In India, there are many tribals and other groups. These tribals are well aware of the usage of medicinal plants. Apart from that rural people also possess a good knowledge about the plants. In recent studies there was a much attention on these plants and their pharmacological studies so as to bring the known and unknown medicinal virtues especially of plant origin to lime light. In the present review article, we just had reviewed the literatures to collect the botanical, ethano botanical, phytochemical and pharmacological information on *Erythrina variegata*. Each part of the plant is used to treat various diseases in India. The different extracts of *Erythrina variegata* showed anti convulsant activity, anti bacterial activity, anti microbial activity, diuretic activity and etc. *Erythrina variegata* has many uses as a medicine yet its therapeutic efficacy has assessed majority in few cases.

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