

Recent Research Assessment in Pharmacological Activity of *Ervatamia Coronaria* Roots

Rubal Rathi^{1*}, S. P. Chakraborti²

¹Department of Pharmaceutical Technology, LTR Institute of Technology, Meerut, Uttar Pradesh, India

Abstract

A recent research assessment deals with evaluation of Torment alleviate and anti-inflammatory activity of ethanolic extract of *Ervatamia Coronaria* roots. The ethanolic extract of *Ervatamia Coronaria* root was subjected using various models such as for exploring the Torment alleviate potential excision torment model and incision torment model and carragenan induced paw edema for the anti-inflammatory activity. The anti-inflammatory activity studied by using carragenan induced rat paw edema method. The ethanolic extract of *Ervatamia Coronaria* roots of different dilutions show better inhibition in edema. The extract possesses good anti-inflammatory activity on carragenan induced rat paw edema.

Keywords: *Ervatamia Coronaria* Roots; Pharmacological Activity; Torment Alleviate

1. Introduction

Ervatamia Coronaria Stapf (*Tabernaemontana divaricata*) belonging to the family Apocynaceae, is a glabrous, evergreen tree indigenous to India and is cultivated in gardens for its ornamental and fragrant flowers (refer figure 1). This species has been extensively investigated and a number of chemical constituents such as alkaloids, triterpenoids, steroids, flavonoids, phenyl propanoids and phenolic acids were isolated from leaves, roots and stems of the plant. In Indian traditional system of medicine, this plant material is widely used as a purgative, tonic to the brain, the spleen and the liver; in the treatment of cancer, wounds and inflammations. The plant extract was also found to possess analgesic, antipyretic and anti-inflammatory properties (Khare C.P. 1990).



Figure 1: Ervatamia Coronaria plant

Approximately 100 species of this genus are widely distributed in tropical parts of the world, including India, Egypt, Brazil, Sri Lanka, Malaysia, Vietnam and Thailand. Ervatamia Coronaria has numerous branches that form a dense crown. It has simple elliptical long leaves that are dark green in color (Leeuwenberg 1991). The flowers of the plant are white and delicate with a pleasant fragrance. The shrub produces a milky juice when cut. This milk like juice is known for its beneficial reliever properties.

2. Researchers View's

Khusro A. et al. (2016) concluded that the silver nano particles (SNPs) and chloroauric nano particles (AuNPs) synthesized from the aqueous extract of leaves of *Tabernaemontana divaricata*. The SNPs and AuNPs inhibited Gram positive and Gram negative bacteria in various bacterial cultures. These results show that *Tabernaemontana divaricata* have antibacterial activity.

Kumar A. et al. (2015) investigate the anti-proliferative efficacy of aerial of *T. divaricata* and then found that the chloroformic extract of *T. divaricata* have anticancer activity on the human epidermoid larynx carcinoma cell line.

Bijeshmon P. et al. (2014) demonstrate that the flower extract of *Tabernaemontana divaricata* tested against standard bacterial strains by disc diffusion method and find that the methanolic extract of the flower inhibited the growth of *Staphylococcus aureus* and *Escherichia coli*. Results show that *Tabernaemontana divaricata* have antibacterial activity.

Poornima k. et al. (2014) concluded that DEN and FE-NTA induced clear cell renal cell carcinoma in male rats treated with ethanolic extract of *Tabernaemontana Coronaria*. This result possess that *Tabernaemontana Coronaria* have anti-cancer activity.

Rathnakumar K. et al. (2013) shows that the naphthalene induced cataract in Wister Albino rats is exhibited by leaf extract of *Ervatamia Coronaria*. They used *Ervatamia Coronaria* leaf extract at dose levels (200&400mg/kg) as standard drug and result shows that the cataract maturation caused by naphelene is protected by *Ervatamia Coronaria* leaf extract.

Satishkumar T. et al. (2012) demonstrate that methanolic extract of *Tabernaemontana heyneana* inhibites *K. pneumoniae* (26+1.0 mm) and *S. typhii* (9.0±2.0 mm). These result show that

Tabernaemontana heyneana possess significant antibacterial activity. It also possess maximum and minimum antifungal effect against *Rhizopus mucor* (25 ± 0.0 mm) & *Trichoderma viridians* (6.0 ± 1.0 mm) respectively.

Singh B. et al. (2011) concluded that isolated indole alkaloids from *Tabernaemontana divaricata* produce antibacterial activity against *K. pneumoniae* and antifungal activity against *P. chrysogenum*. These results show that *Tabernaemontana divaricata* have antimicrobial and antifungal activity and juice of its leaves prevent inflammation of wound by producing cooling effects.

Rahman et al. (2011) concluded that in alloxan induced diabetic mice the methanolic extract of *Ervatamia Coronaria* flower show hypoglycemic activity. It shows that the *T. divaricata* methanolic extract possess low cytotoxicity on brine shrimp nauplii.

Sawarkar et al. (2010) prepared the anti acne gel by using the ethanolic extract of *T. divaricata*. The formulation contains various plant materials as hydro alcoholic extract of leaves of *O. sanctum*, tea tree oil, aloe vera concentrate gel powder and ethanolic extract of leaves of *T. divaricata*. This formulation evaluated for their in vitro antibacterial activity against *P. acnes*. The inhibition zones for the antibacterial activity compared with standard tetracycline .1gm/100gm concentration of formulation of *T. divaricata* have shown comparable inhibition zones to that of the marketed preparations.

Thavamani B. S. (2009) demonstrates that *Ervatamia Coronaria* (Jacq) stapf produce antibacterial activity & used in different type of eye disease.

Yoyungnoen et al. (2008) shows that the root extract of *T. divaricata* produce a dose dependent reduction in mean arterial pressure and in systolic/diastolic blood pressure when given intravenous injection so the extract have hypertensive effect in anesthetized rats. Higher dose of the *T. divaricata* extract (20 and 25 mg/kg body weight) caused reduction in the heart rate. This suggests that extract possess hypotensive activity in rats.

Chattipakom S. et al. (2007) demonstrate that *T. divaricata* extract produce anti-acetyl cholinesterase activity at various doses (250,500 & 1000mg/kg) at different time points. After two hours a single administration of all doses of *T. divaricata* extract inhibited cortical ache activity & increase neuronal activity in cerebral cortex. *T. divaricata* extract significantly inhibited circulating ache 10, 30 and 60 minutes after administration. They concluded that *T. divaricata* extract beneficial for Alzheimer disease.

Federici et al. (2005) concluded that the extract of *T. fuchsiaefolia* root, barks and stem show good in vitro activity against *Plasmodium falciparum* which is responsible for malaria. So *T. fuchsiaefolia* extract used for the malaria fever which is caused by parasite *Plasmodium falciparum*.

Henriques et al. (1996) concluded that if alcoholic and aqueous extract of *Ervatamia Coronaria* is administered P.O or I.P to rats about one hour before sub plantar projection of carrageenan then it produces better anti-inflammatory effects. The alcoholic extract of *Ervatamia Coronaria* possess analgesic effect and increased the pentobarbital induced sleeping time.

Taesotikul T. et al. (1989) shows that if ethanolic extract of the stem, leaf and flower of *Pandocahui* is given to petobarbitone anesthetized rat by intravenous route then it produce hypotension. The flower extract of *Tabernaemontana Pandocahui* with a high doses (100-300 mg/kg) produce a short hypertensive effect preceding hypertensive effect. The extract effect on the heart rate of anesthetized rats correlated well with the negative chronotropic and ionotropic activity observed with isolated atrium. The hypertensive activity of extract is not inhibited by anti-muscarinic and antihistaminic agents. Thus the hypotensive activity of extract is not mediated by histaminic and muscarinic receptors stimulation or alpha adrenoceptors blockage.

3. Conclusions

According to these reviews it is concluded that the ethanolic extract of *Ervatamia Coronaria* roots exhibit significant anti-inflammatory activity against paw edema due to the presence of flavonoid in it. It appeared that ethanolic extract of *Ervatamia Coronaria* show anti-inflammatory activity against early phase (acute paw edema) and late phase (cotton pellet granuloma) of inflammation models. It is also concluded that the plant *Ervatamia Coronaria* has good antibacterial, anti-cataract, antimicrobial, antifungal and anti-malarial activity. Hence it is very useful plant in the field of medicine.

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