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Research Article

# A Review on The Taxonomy, Ethnobotany, Chemistry and Pharmacology of *Eranthemum Roseum*

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## ABSTRACT

Acanthaceae, also known as Acanthus is a large family of dicotyledonous flowering plants including about 4300 species and 346 genera all over the world. Most are tropical shrubs, herbs and twining vines while some are epiphytes. Chemically it contained some important secondary metabolites such as glycosides, flavonoids, alkaloids, triterpenoids and fatty acids. These compounds play an important role in many biological activities. The present review highlights some important features of the genus *Eranthemum* and also describes its various conventional and new novel uses in our daily life. By keeping these points the present review will be useful for further research and clinical trials in future study.

**KEYWORDS:** *Eranthemum*, Taxonomy, Ethno botany, Phyto-constituents, Pharmacological activity

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## INTRODUCTION

India is endowed with rich diversity of flora and it is, therefore, natural that the traditional systems of Indian medicine, Ayurveda, Siddha, and Unani-Tihb, have mainly drawn upon plants as the source of the drugs for the treatment of various human ailments. These systems of medicine are in trend even today, serving a fairly large segment of our population, in spite of modern medicine.(1)

*Eranthemum* was described by Linnaeus (1753) based on a single species, *E. capense* L. The genus of 30 species belonging to the family Acanthaceae subfamily Acanthoideae and distributed mainly in tropical and subtropical Asia, Western Ghats of Indian peninsula, Tropical Africa and Thailand. The habitat of this plant is found in moist deciduous forests and open areas other than plateaus. It is characterized as perennial herbs. (2) The synonym of *Eranthemum roseum* are

*Justicia rosea* and *Daedalacanthus roseus*. Blue *eranthemum*, Kaadu neeli (3), Dasmuli (4) and Nilamulli (5) are the common names of this plant. The plant is considered as a sacred grove plant. (6) It is a terrestrial and endemic plant. (7, 8)The life form of *Eranthemum* is phanerophyte (9) and this plant possess an oppressive odour. (10) The flowering period is from September to December. (11)

## MATERIAL AND METHODS

The ethnobotanical, phytochemical and pharmacological information related to *Eranthemum roseum* from 1936 to 2023 were collected by surveying the traditional medicinal books and ethnobotanical publications and searching the online databases including Web of science, Google scholar, PubMed, Research Gate, Springer Link and Wiley.



#### Plant Description: (2)

**Plant name:** *Eranthemum roseum*  
**Family:** Acanthaceae  
**Genus:** *Eranthemum*  
**Species:** *roseum*  
**Kingdom:** Plantae  
**Order:** Lamiales  
**Class:** Magnoliopsida

#### Morphology of *Eranthemum roseum*: (2, 12)

| Character                  | <i>E.roseum</i>      |
|----------------------------|----------------------|
| Habit                      | Shrub, 1-2 m         |
| Leaf shape                 | Ovate-lanceolate     |
| Leaf apex                  | Attenuate or caudate |
| Leaf base                  | Cuneate or rounded   |
| Inflorescence              | Terminal or axillary |
| Bracteole shape            | Linear               |
| Bracteole apex             | Attenuate            |
| Calyx lobe shape           | Linear               |
| Calyx lobe apex            | Attenuate            |
| Number of spikes per plant | Many                 |

#### Chemical constituents: (13) (14) (15)

The leaves of *Eranthemum roseum* is reported to contain flavonoids like 7-OMe Apigenin, 7, 4'-DiOMe Luteolin, 7, 3', 4'-TriOMe Luteolin. The roots contain

saponin glycoside, carbohydrate, protein, steroidal sapogenin and terpenoids. The flowers contain flavonoids and anthocyanin.

#### Ethnomedicinal uses:

**Table 1: Method of preparation and uses of the plant by various tribes**

| Type of tribes          | Parts used | Preparation                                                                         | Uses                                        | Reference |
|-------------------------|------------|-------------------------------------------------------------------------------------|---------------------------------------------|-----------|
| Bhils & its Subtribes   | Roots      | Grinding with glassful of Water & given 1/6 glass twice a day for 3day orally       | Antiulcer, Anti inflammatory                | (16)      |
| Pawra tribe             | Roots      | Half cup of root decoction is administered at morning                               | Reduce body heat and is consumed till cure. | (17)      |
| Bhils and its subtribes | Roots      | Fresh root juice infusion                                                           | Treat stomach ache                          | (18)      |
| Bhil tribes             | Roots      | Roots grounded with glass full of water and taken orally twice a day for three days | Treat malaria and typhoid.                  | (19, 20)  |
| Dhangar tribe           | Roots      | The juice extracted from root is mixed with milk                                    | Control diabetes                            | (21)      |
| Bhila tribes            | Roots      | Cupful of root infusion is prepared and taken twice a day for 2 to 3 days           | Ulcer, hyperacidity                         | (22)      |
| Tribes of western ghats | Roots      | Roots are used externally                                                           | Treat scabies                               | (23)      |
| Palghar tribes          | Flowers    | Decoction of the flowers are                                                        | Treat menstrual disorders                   | (24) (25) |

|                              |        |                                                                               |                                                                                                |      |
|------------------------------|--------|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------|
|                              |        | prepared                                                                      |                                                                                                |      |
| Tribes of Dhamtari district  | Roots  | Decoction                                                                     | Treatment of Leucorrhea and is also to promote fetal growth during pregnancy and safe delivery | (25) |
| Baiga tribes                 | Roots  | Crushed root is applied in vagina with honey                                  |                                                                                                | (26) |
| Tribes of Ratnagiri district | Roots  | Paste is externally used                                                      | Treat wounds                                                                                   | (27) |
| Tribes of Khandesh region    | Leaves | Fresh Leaves are made into paste and applied on body                          | Treat liver disorder                                                                           | (28) |
| Korku tribe                  | Roots  | Odour of crushed fresh roots is inhaled and the root paste is applied on head | Cure vertigo                                                                                   | (29) |
| Tribes of Silvassa           | Roots  | Crush bark and decoction of root taken orally 2-3 ml daily                    | Treat jaundice                                                                                 | (30) |
| Tribes of Mahur taluk        | Roots  | Root is ground and the paste is applied on feet at night                      | Reduce burning sensation or to cure cracks of feet                                             | (31) |

**Reported Pharmacological activity:****Toxicological evaluation of eranthemum roots**

Present investigation was done to evaluate acute and chronic toxicity of Methanolic extract of *Eranthemum roseum* (MER), From the study they concluded that the LD<sub>50</sub> Methanolic extract of *Eranthemum roseum* is greater than 2000 mg/kg. In chronic toxicity study three dose levels of extract were selected and administered up to 90 days. Through this study they concluded that Methanolic extract of *Eranthemum roseum* is good enough safe for internal administration even for long term. (32)

**Antimicrobial activity**

The results obtained showed strong antimicrobial activity of the petroleum ether extract of the roots of *Eranthemum roseum* tested against bacteria like *Escherichia coli*, *Staphylococcus aureus*, *Bacillus subtilis*, *Shigella sonnei*, *Klebsiella pneumoniae*, *Salmonella typhi*, *Proteus vulgaris*, *Pseudomonas aeruginosa* and fungi such as *Candida albicans* and *Aspergillus niger* by cup plate diffusion method. (33)

**Antidiabetic activity**

To study the effect of saponin fraction of *Eranthemum roseum* (SFER) on elevated blood glucose along with other biochemical parameters and on oxidative stress generated due to diabetes. Antidiabetic effect of SFER was tested using different doses like 30, 60, 120 mg/kg. Treatment with SFER showed significant decrease in blood glucose level. (34)

**Anti inflammatory and antioxidant activity**

Roots of *Eranthemum roseum* were evaluated for anti inflammatory and antioxidant activity using carrageenan induced rat paw edema and nitric oxide scavenging activity respectively. The results suggest that the butanolic fraction had significant anti-inflammatory and nitric oxide scavenging activities, which can be attributed to its saponin content. (35)

**Antiulcer activity**

Antiulcer activity of *Eranthemum roseum* was tested on ethanol induced ulcer in albino rats. The study concluded that the extract showed antiulcer activity (36)

**Antidiabetic and Antioxidant**

Antidiabetic and antioxidant activity of the root extract of *Eranthemum roseum* was tested. The study concluded that the extract showed antidiabetic and antioxidant activity. (37)

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