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**Dr. S Senthil Kumar**Post-Doctoral, Research Scholar,  
Manipur International University,  
Imphal, Manipur, India**Dr. C Kiruba Rani**Department of Biochemistry,  
Vellalar College for Women, Erode,  
Tamil Nadu, India

## A review on phytochemical, pharmacological and traditional uses of *Acalypha indica* Linn

**Dr. S Senthil Kumar and Dr. C Kiruba Rani**

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### Abstract

*Acalypha indica* is one of the weed plants that contain important medicinal values for human health applications. The extracts of various parts of the plant, leaves, roots and stem parts are used for the medicinal purposes to treat various diseases such as the rheumatism, eye infections, respiratory problems and skin problems and to decrease blood sugar level. Different extraction methods are used for obtaining active components from *Acalypha indica*. The plant condition during treatment, fresh or dry, could also be an important factor in its therapeutic effectiveness. The fresh *Acalypha indica* plant has a wide variety of nutrients such as carbohydrates, proteins, vitamins and lipids. *Acalypha indica* has high iron content, followed by copper, nickel, zinc, and chromium which are useful for patients with mineral deficiencies problems.

**Keywords:** Phytochemical, pharmacological, traditional value, *Acalypha indica*, medicinal plant

### Introduction

*Acalypha indica* is used as diuretic, anthelmintic and for respiratory problems such as bronchitis, asthma and pneumonia [1]. The roots of *Acalypha indica* is used as laxative and leaves for scabies and other cutaneous diseases [2]. Major Phytochemicals identified from *Acalypha indica* are acalyphine, cyanogenic glycoside, inositol, resin, triacetomamine, and volatile oils [3]. The plant has been used extensively in herbal medicine in many tropical and subtropical countries [4, 5].

*Acalypha indica* commonly known as Indian Copperleaf or Indian nettle, belongs to the Family Euphorbiaceae, indeed holds a significant place in traditional medicine, particularly in Ayurveda [6]. Its broad spectrum of traditional uses reflects its diverse phytochemical composition, which includes polyphenols, flavonoids, alkaloids, saponins, terpenoids and tannins [7]. Among its traditional uses, *Acalypha indica* has been employed for treating various ailments including infertility, wound healing, inflammation, bacterial infections and cancer [8]. The presence of phytochemical constituents like polyphenols and flavonoids suggests its potential antioxidants properties, which could contribute to its effectiveness in wound healing and combating oxidative stress-related disorders. Alkaloids and terpenoids found in *Acalypha indica* may play a role in its anti-microbial and anti-inflammatory activities [9, 10].

### Pharmacology uses of *Acalypha indica*

*Acalypha indica* plant leaves a juice to treat cough, ear ache, head ache, syphilitic ulcer, anti-parasiticide, constipation, rheumatoid arthritis, pneumonia, emetic and scabies. The juice from the whole plant is used to treat bronchitis, snake bites, pneumonia and flatulence [11, 12]. Besides, this plant leaves were made into paste alone and used to treat many ailments which include dermatological problems, wounds, chest pain, burns, snake bite and itching [13].

The roots was used for asthma, liver and kidney cleaning, as laxative, against intestinal worms and for stomach-ache [14]. Other parts of this plant like the stem prepared as a decoction against haemorrhoids [15]. A decoction from the entire plant ingested to treat earache, toothache, burns and wheezing [16]. Along with juice, paste and decoction, the other sources also practiced which include infusion, sap and powder [17].

The following beneficial effects of the plant *Acalypha indica* leaves and roots used against diarrhea, seeds used against cholesterol and rheumatism [18]. Total plant used to treat animal diseases such as anthrax and black quarter, human diseases include severe cough, antifertility, eye infections, piles, pistula, expectorant, flatulence, arthritis, haemoptysis, mania, bed sores, syphilis, wound healing, rheumatism and antiseptic [19].

**Corresponding Author:****Dr. S Senthil Kumar**Post-Doctoral, Research Scholar,  
Manipur International University,  
Imphal, Manipur, India

### Phytochemical uses of *Acalypha indica*

*Acalypha indica* total plant and leaves for isolation of bioactive compounds is more when compared with stem, root and inflorescences. This plant is very precise in having alkaloids and their glycosides because few of them are cytogenic glycosides, a class of toxic compounds. Flavonoids, tannins, coumarins, phenols, fatty acids, steroids and terpenes are other constituents [20].

*Acalypha indica* plants majorly due to the presence of medicinally useful secondary metabolites. *Acalypha indica* has been used by traditional healers against many ailments, this is followed by the researchers started extraction of phytochemicals into methanol, diethyl ether, ethyl acetate, ethanol, aqueous alcohol, petroleum ether, chloroform and water from total plant, leaves, roots and stem. Consequently they found flavanones, flavonoids, phenols and saponins quantitatively [21].

The phytochemistry of this plant revealed that it has mostly polyphenols, phenols, flavonoids, tannins and coumarins, alkaloids and their glycosides, volatile compounds and fatty acids. Biological and pharmaceutical studies showed that *Acalypha indica* is a potential anti-microbial, anti-diabetes, anti-inflammation, larvacidal, antioxidant, wound healing and venom neutralizing agent [22]. Usually, majority of anti-inflammatory compounds can reduce the pain. Gathering, this reduction property of *Acalypha indica* is due to active phytochemical compounds, isolation would be taken up, evaluated in experimental animals and further studies may be extended to human beings [23].

### Traditional uses of *Acalypha indica*

The potentiality of the plant *Acalypha indica* proved many biological as well as pharmacological activities. The bioactive compounds of plants used to asthma, burns, diarrhoea, dog bite, epilepsy, aches of stomach, ear, head, syphilis, ulcer and wheezing etc. *Acalypha indica* extracts which showed potential activity will be properly utilised for development of drugs [24].

The traditional uses of *Acalypha indica* in pharmacological and biological activities. The whole plant uses in traditional value of Asthma, Bed Sores, Anti Fertility, Arthrities, Burns, Constipation, Dermatological ailments, Diuretic, Emetic, Eye diseases, Piles, Pneumonia, Scabies, Severe cough, Snake bites, Syphilis, Toothache, Urinary infections, Wheezing and Wound Healing [25].

### Conclusion

*Acalypha indica* playing an important role in curing many diseases. Phytochemical screening of plant extracts to various qualitative phytochemical tests reveals the presence of Saponins, Alkaloids, Phenols, Flavonoids, Proteins, Carbohydrates, and Glycosides. Pharmacological examinations has indicated that the plant has strong antibacterial, anti-fungal, against-provocative, hostile to-osteoporotic, cell reinforcement, neuro defensive, injury mending, post-coital anti fertility exercises. The fresh *Acalypha indica* plant has a wide variety of nutrients such as carbohydrates, proteins, vitamins and lipids. It also contains a heavy metals and high amount of iron content, copper, nickel, zinc, and chromium which are useful for patients with mineral deficiencies problems.

### References

1. Varier VPS. Indian medicinal plants: A compendium of 500 species. Madras, India: Orient Longman Publication;

- c1996. p. 134-135.
- Perry LM. Medicinal plants of East and South East Asia: attributed properties and uses. Cambridge, Mass, U.S.A: MIJ Press; c1980. p. 109-110.
  - Winter H, Griffith MD. Vitamins, herbs, minerals and supplements: the complete guide. USA: Fisher Books; c1988. p. 217-218.
  - Kirthikar KR, Basu BD. Indian medicinal plants. Volume II. 2<sup>nd</sup> ed. New Delhi: Jayyed Press; c1975. p. 30-45.
  - Ramachandran J. Herbs of Siddha medicine / The first 3D book on herbs. Chennai, India: Murugan P Pathipagam; c2008. p. 156-157.
  - Chekuri S, Lingfa L, Panjala S, Bindu KCS, Anupalli RR. *Acalypha indica* L.: An important medicinal plant: A brief review of its pharmacological properties and restorative potential. Eur J Med Plants. 2020;31(11):1-10.
  - Basma AA, Zakaria Z, Latha LY, Sasidharan S. Antioxidant activity and phytochemical screening of the methanol extracts of *Euphorbia hirta* L. Asian Pac J Trop Med. 2011;4(5):386-390.
  - Chandra Mohan S, Dinakar S, Anand T, Elayaraja R, Sathiyapriya B. Phytochemical, GC-MS analysis and antibacterial activity of a medicinal plant *Acalypha indica* L. Int J Pharm Tech Res. 2012;4(3):1050-1054.
  - Dewi K, Fachriyah E, Prinanda GR. Isolation of phenolic acid in *Acalypha indica* plants and test total phenol and antioxidant test using DPPH method. IOP Conf Ser: Mater Sci. Eng. 2019;509:012033.
  - Zahidin NS, Saidin S, Zulkifli RM, Mohamad IJ, Yaakob H, Nur H. A review of *Acalypha indica* L. (Euphorbiaceae) as traditional medicinal plant and its therapeutic potential. J Ethnopharmacol. 2017;207:146-173.
  - Hada BS, Katewa SS. Ethnomedicinal plants used against various diseases in Jhalawar district in Rajasthan, India. J Global Biosci. 2015;4:2077-2086.
  - Neamsuvan O, Rugngrit T. A survey of herbal weeds used to treat gastrointestinal disorders from Southern Thailand, Krabi and Songkhla provinces. J Ethnopharmacol. 2017;209:318-327.
  - Ayyanar M, Ignacimuthu S. Herbal medicines for wound healing among tribal people in Southern India: ethnobotanical and scientific evidences. Int J Appl Res Nat Prod. 2009;2:29-42.
  - Pushpangadan P, Atal CK. Ethno-medico-botanical investigations in Kerala: some primitive tribals of Western Ghats and their herbal medicine. J Ethnopharmacol. 1984;11:59-77.
  - Nadkarni AK. KM Nadkarni's Indian Materia Medica. 3<sup>rd</sup> ed. Bombay: Popular Prakashana; c2002. p. 811-816.
  - Steyn DG. The presence of hydrocyanic acid in stock feeds and other plants. Student Am Vet Med Assoc. 1938;9:60-64.
  - Colley FC. Traditional Indian medicine in Malaysia. J Malaysian Branch Royal Asiatic Soc. 1978;51:77-109.
  - Kumar GP, Chaturvedi A. Ethnobotanical observations of Euphorbiaceae species from Vidarbha region, Maharashtra, India. Ethnobotanical Leaflets. 2010;14:674-680.
  - Prakash R. Medicinal plants used by tribal communities: a study of Uttarakhand Himalayan region. Int J Humanities Soc. Sci. Inven. 2015;4:55-61.
  - Poornima R, Prabakaran G. Preliminary phytochemical screening and antibacterial activity of *Acalypha indica* and *Euphorbia hirta* of family Euphorbiaceae against

- some pathogenic organisms. *Int. J. Agri. Sci.* 2012;2:34-38.
21. Hoult JR, Paya M. Pharmacological and biochemical actions of simple coumarins: natural products with therapeutic potential. *Gen Pharmacol.* 1996;27:713-22.
  22. Kumarasamy Raja D, Swami Elamanickam M. Evaluation of *in vivo* and *in vitro* wound healing activity of aqueous extract of *Acalypha indica*. *Int Res J Pharm.* 2015;6:57-61.
  23. Crowley PD, Gallagher HC. Clotrimazole as a pharmaceutical: past, present and future. *J Appl Microbiol.* 2013;117:611-7.
  24. Helton LR. Folk medicine and health beliefs: An Appalachian perspective. *J Cult Divers.* 1996;3:123-128.
  25. Jaya Prakasham R, Ravi TK. Evaluation of anti-arthritis activity of the root extract of *Acalypha indica* Linn. Using *in vitro* techniques. *Int J Phyto Pharm.* 2012;2:169-173.