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COCCULUS HIRSUTUS, A VERSATILE HERBAL MEDICINE: A REVIEW

Tharun Kumar.G*[1], JSN Murthy[2], R. Raja Reddy[3], Vasu .K[3], Choda Pradesh Kumar

1. Guru Nanak Institute of Pharmacy, Ibrahimpatnam, Hyderabad.
2. Faculty of Technology, Osmania University, Hyderabad.
3. Arya college of Pharmacy, Kandi village, Sangareddy, District Medak.
4. Teegala krishna Reddy College Of Pharmacy, Medbowli, Meerpet, Saroor Nagar, Hyderabad.

Corresponding author's Email: mail2tarunin@gmail.com Mob. No: +918096841084

Abstract

Cocculus hirsutus commonly known as broom creeper belongs to the family Menispermaceae. It is easy available and high contents of pharmacological active constituents. It is widely used in folk medicine in tuberculosis, leprosy, skin diseases, dyspepsia, pruritis, and flatulence etc. Hence an effort has been made for the enlighten the importance of different parts of Cocculus hirsutus.

Key words*: Cocculus hirsutus, Pharmacological, Folk medicine.*

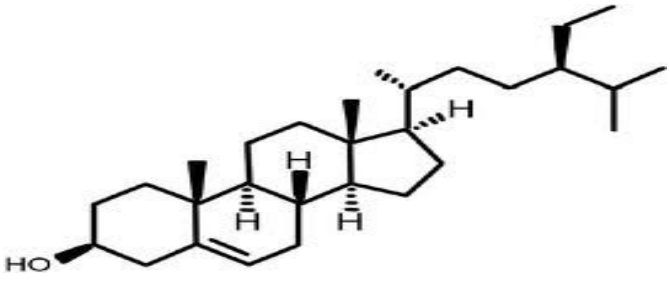
Introduction

Herbs are the cradle of all chemicals with medicinal properties that have been used by wise men for ameliorating the disturbed anatomy and physiology of ailing ones. Herbal drugs have been used by human being since time immortal. Herbal drugs are prescribed widely because of their effectiveness, less side effects and relatively low cost (Venkatesh et al., 2003).Therefore investigation on some active principles from traditional medicinal plants has become more important (Suba et al., 2004).The world health organization (WHO, 1980) has also recommended the evaluation of the effectiveness of plants in condition where we lack safe modern drugs (Upathaya and Pandy, 1984). *Cocculus hirsutus Linn* (Menispermeaceae), commonly known as Jal-Jammi (Chopra et al., 1958) or Broom creeper is found in moderately cool and hot regions of India; particularly Tamilnadu, Bihar and Punjab. It is a perennial climber and reaches 2 to 3 m above ground. Its leaves are 3 to 5 veined from the base and are variable in shape. The older leaves are often distinctly 3 to 5 lobed, while the younger leaves are oblong ovate to somewhat ovate. Its leaves are covered in yellowish velvety hairs. Flowers of this plant are in axillary clusters and they are unisexual, while its sepals are densely hairy. Its fruit is somewhat ellipsoid (4 mm in diameter), fleshy and purple blue when ripe (Kirtikar and Basu, 1981). *C. hirsutus* is wildly distributed in Africa and Asia tropical, particularly Indian subcontinent (Indian-Bihar, Gujrat, Orissa, Rajasthan, Tamil Nadu and Pakistan), Western Asia (Iran) and Asia temperate (Saudi Arabia, Yemen). In Tamil this plant is known as Kattukkodi. Indian tribes use various plant parts of this plant for a wide

range of ailments including constipation, kidney problems (Caius, 1986). In Tamilnadu Kaani tribes of Karaiyar using this plant for the treatment of skin disease, sexual debility and wound healing. An effort has been made for the enlighten the importance of different parts of *Cocculus hirsutus*.

Phytochemical review:

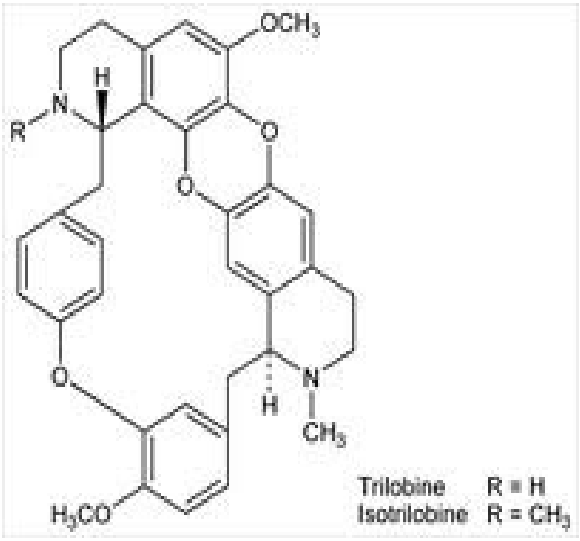
The plant has been reported to contain essential oil, β-sitosterol

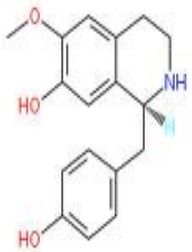


β-sitosterol

Ginnol (Merchant et al., 1962).

Ethanolic extract of whole plant showed the presence of isoquinoline alkaloid d-trilobine





dl-coclaurine

(Jaganatha, 1961), Cohirsinine (Viquaruddin, 1991), Jamtinine (Viquaruddin, 1992)

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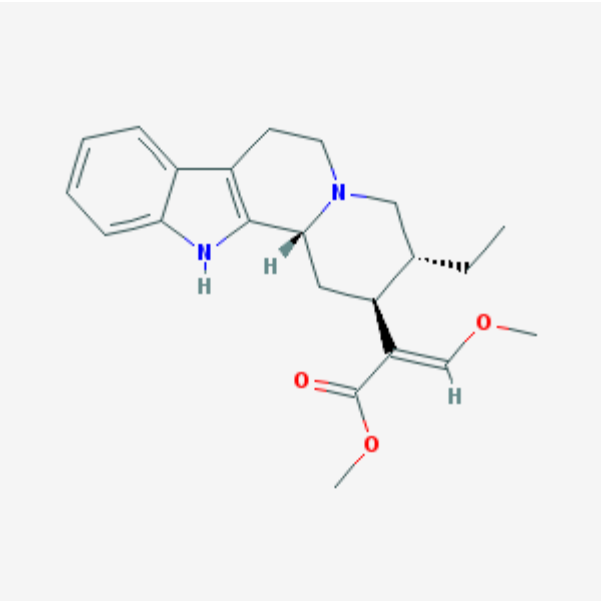
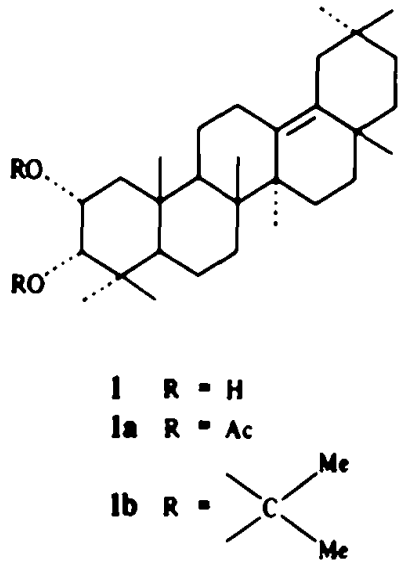


cohirsutine (viquaruddin, 1993)



hirsudiol

Pharmcological review:

The hepatoprotective effects of Cocculus hirsutus could be due to the presence of phytochemicals like β-sitosterol, trilobine, isotrilobine, syringaresional, protoquercitol, ginnol and glycosides (Ganapaty et al., 2002). Anti hyperglycemic (Badole et al., 2006); antibacterial (Panda et al.,2007); Aerial parts of the plant reported to be used as a diuretic and laxative (Ganapaty al.,2009) effects.The Cocculus hirsutus shows hypoglycemic activity (Ganapaty and Bijay, 2006), hypolipidemic activity (Palsamy et al., 2007) and spermatogenic activity (Jayakar and Sangameswaran, 2007). Root extract showed analgesic and anti-inflammatory effect (Nayak, 1993), laxative, demulcent, analgesic and also as tonic and diuretic (Glanze, 1996). The leaf juice of this plant is used in the treatment of eczema (Masilamani, 1981). Leaves and stem are used for treating eye diseases. The juice of leaves coagulates in water and forms mucilage, which is used externally as a cooling and soothing agent in impetigo (Nadkarani, 1982). The aqueous extract of leaves of C. hirsutus show better antidiabetic activity. The leaves of the plant have been evaluated for antihyperglycemic (Badole et al., 2006), antibacterial (Panda et al., 2007). The juice of leaves coagulates in water and forms mucilage, which is used externally as a cooling and soothing agent in eczema and impetigo (Nadkarani, 1982).

Cocculus hirsutus leaves contain a high proportion of mucilage. The majority of the traditional uses of Sisi leaves can be attributed to the mucilage content only. This mucilage contains polysaccharides and a gelatinous type of material. This material is not absorbed in the G.I.T, and passes through the system undigested. Cocculus hirsutus leaves are used topically as emollient and demulcent. It has been non- toxic to human skin. Hence in the present study, it was planned to formulate Flurbiprofen gel using cocculus mucilage as a gelling agent and to study its characters.(Leung et al., 1996)

The roots of Cocculus hirsutus have been mentioned as bitter, acrid, laxative, tonic and diuretic. The root destroys kapha and vata lessens bile (Kirtikar and Basu, 1987). Roots and leaves are given for Sarsap- arilla, as diuretic and in gout (Nadkarni, 1982). The root is bitter and used as alterative, emollient, demulcent, tonic, antiperiodic in fever, in malaria, joint pains, in treatment of skin diseases, constipation and kidney problems (Chopra et al., 1996). Decoction of the root mixed with long pepper is used in chronic rheumatism and syphilitic cachexia (Chadha, 1950; Nandkarni, 1976). The roots of Cocculus hirsutus have been mentioned as bitter, acrid, laxative, tonic and diuretic.

Folk medicine claims that it may be used in jaundice. Indian tribes use various plant parts of this plant for a wide range of ailments including constipation, kidney problems (Caius, 1986). In Tamilnadu Kaani tribes of Karaiyar using this plant for the treatment of skin disease, sexual debility and wound healing. The roots are used for the treatment of rheumatism, tuberculosis, leprosy, dyspepsia, pruritis, flatulence, laxative, aphrodisiac, antipyretic and leaves are used in biliousness, eczema, gonorrhea, opthalmia, sexual debility and neuralgia (Warrier et al., 2005). Traditionally the plant was patronized for its unique property of healing all type of cuts, wounds and boils in very less time and with less pain. It is also used in the treatment of gonorrhea, spermatorrhoea, urinary troubles, diarrhea and hyperglycemia 9. It is also used in treatment of gonorrhea, spermatorrhoea, hyperglycemia etc (Kirtikar et al.,2002). The decoctions of the leaves are used for treatment of gonorrhea, spermatorrhoea and diarrhoea [5]. Leaves are also used in eczema, dysentery, leucorrhoea, and urinary problems. Leaves and stems are used for treating eye diseases. The roots are used for the treatment of rheumatism, tuberculosis, leprosy, skin diseases, dyspepsia, pruritis, and flatulence, laxative, aphrodisiac, antipyretic and leaves are used in biliousness, eczema, gonorrhea, opthalmia, sexual debility and neuralgia (Warrier et al., 2005).

CONCLUSION

All part of *Cocculus hirsutus* have excellent pharmacological properties and lot of chemical constituents were isolated from the different part of Cocculus *hirsutus* but it have need for the isolation of active constituents.

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REFERENCES

Venkatesh, S., G.O.Reddy, BM.Reddy, M.Ramesh and A.V.N.Appa Rao, (2003).Antihyperglycemic activity of Caralluma attenuates.Fitoterapia, 74:274-279.

Suba, V., T.Murugesan, G.Arunachalam, S.G.Mandal and B.P.Saha, (2004).Hypoglycemic potential of Barleria lupulina extract in rats.Fitoterapia, 75:1-4.

WHO, (1980).The WHO Expert Committee on Diabetes mellitus. Geneva: World health organization, Technical Report Series, 646.

Upathaya, V and K.Pandey, (1984).Ayurvedic approach to Diabetes Mellitus and its management by Indigenous Resources. In: Diabetes Mellitus in Developing countries-Bajaj, J.S(Ed), Interprint, New Delhi, pp: 375-377.

Chopra R.N, Chopra I.C (1982). In; indigenous drug of India, V.N.Dhar and Sons Pvt, Calcutta, 1958,501.

Caius, J.E., (1986).The medicinal and Poisonous plants of India. Jodhpur, Scientific Publishers, pp: 166- 171.

Merchant, J.R., R.M.Naik and S.N.Hirwe, (1962).Chemical investigation of Cocculus hirsutus (L.) Diels.

Jagannadha Rao KV, Ramachadra Raw L (1961). J. Sci. Ind. Res., 20B: 125.

Viquaruddin A., Tahir R (1991). Cohirsinine, A new alkaloid from Cocculus hirsutus. Phytochemistry 30: 1350-1.

Viquaruddin A, Iqbal S (1992). Cohirsutin, A new iso-quinoline alkaloid from Cocculus hirsutus. Fitoterapia, 63: 308-10.

Viquaruddin A, Iqbal S (1993). Jamtinine, An alkaloid from Cocculus hirsutus. Phytochemistry, 33: 735-6.

Viqar U A, Farayal V M and Tahir R(1987), Hirsudiol, A Triterpenoid from *Cocculus hirsutus.* Phytochemistry, 26: 793-4.

Ganapaty S, Dash GK, Subburaju T and Suresh P. Diuretic, laxative and toxicity study of Cocculus hirsutus aerial parts., Fitoterapia, 2002, 73(1), 28-31.

Badole S, Patel N, Badhankar S, Jain B, Bharadwaj S, Antihyperglycemic activity of aqueous extract of leaves of Cocculus hirsutus (L) Diels in alloxan induced diabetic mice, Ind. J. of Pharmacol., 38(1), 2006, 49-53.

Panda BK, Mishra US. Antibacterial activity of the leaves of Cocculus hirsutus. Indian Drugs 2007; 44: 108-10.

Ganapaty S, Vijay K. Hypoglycemic activity of aerial parts of Cocculus hirsutus on alloxan-induced diabetes. Indian J Nat Prod. 2006; 22: 17-20.

OECD Guidelines for the testing of chemicals revised draft guideline 425: Acute oral toxicity – 2001. Acute toxic class method. Palsamy P, Malathi R. hypolipidemic activity hirsutus (L) diels leves mellitus rats. Int J Biol ijbc.2007.205.212 .

Jayakar B, Sangameswaran B. Anti-diabetic and spermatogenic activity of Cocculus hirsutus (L) diels. African J Biotech. 2007; 6: 1212-16.

Nadkarni A.C (1982). Indian material medica: Vol I, 3rd Edn popular prakashan Nayak S.K, Singhai A.K. (1993). Anti-inflammatory and analgesic activity of roots of Cocculus hirsutus. Indian.J.Nat.Prod.9:12-4.

Glanze WD (1996). Mosby Medical Encyclopedia. Revised Edition St. Louis MO: C.V. Mosby. Golden MH (1982). Trace elements in human nutrition, Hum. Clin. Nutr., 6: 448-455.

Masilamani G, Shokat A (1981).J.Res.in.Ayurveda and Siddha, 2:109.

Nadkarni A.C (1982). Indian material medica: Vol I, 3rd Edn popular prakashan.

Leung A.Y and Foster S, et.al, Encyclopedia of common Natural Ingredients used in food, Drugs and Cosmetics, 2nd Edition. (1996), John Wiley and Sons Inc. New York, pp 243 – 245.

Kirtikar KR and Basu BD. Indian Medicinal Plants, Sri Satguru Publication, New Delhi, 3rd revised enlarged edition, 2002, pp-120.

Chopra RN, Nayar SL, Chopra IC (1996). Glossary of Indian Medicinal Plants, National Institute of Science Communication, New Delhi. pp. 72-73.

Nayak SK, Singhai AK, et al (1993). Anti-inflammatory and analgesic activity of roots of Cocculus hirsutus. Indian J. Nat. Prod. 9: 12-4.

Chadha YR (1950). The Wealth of India- A dictionary of Indian Raw Materials and Industrial Products. CSIR, New Delhi. pp. 258-259.

Warrier PK, Nambier VP and Ramankutty C. (2005).Indian Medicinal plant-A Compendium of 500 species,Vol-5, Orient Longman Pvt Ltd, Chennai, pp.138-140.