World Journal of Pharmaceutical Sciences
ISSN (Print): 2321-3310; ISSN (Online): 2321-3086
Available online at: http://www.wjpsonline.org/
Review Article

A Review on Pharmacological effects of Rubia cordifolia

Ankush Chauhan, Ajeet Pal Singh, Amar Pal Singh

St. Soldier Institute of Pharmacy, Lidhran Campus, Behind NIT (R.E.C), Jalandhar-Amritsar by pass NH-1 Jalandhar-144011, Punjab, India

Received: 10-03-2021 / Revised Accepted: 08-04-2021 / Published: 08-04-2021

ABSTRACT

The Ayurvedic medicinal plant has lesser side effects, safety for health and good therapeutic efficacy; they have used from ancient time in primary health care and chronic disease aliments. Manjishtha(Rubia cordifolia L.) belonging to Family Rubiaceae. It is commonly known as 'Indian Madder'.R. cordifolia is an old restorative plant which contains different pharmacological activities like Antiulcer Activity, Cardio protective activity, Anti-platelet activating effect, Diuretic Activity, Nephrotoxicity and wound mending property and its organic products has toxicological impacts. This investigation brings about an outline of pharmacological and traditional impacts of R. cordifolia.

Key words: Rubia cordifolia Linn, Phytochemistry, Taxonomic Classification, Pharmacological Effects, Synonyms, Traditional uses.

INTRODUCTION

Rubia cordifolia is an enduring climbing herbaceous plant. It is otherwise called Indian madder, which is a blooming plant animal category in the espresso family, Rubiaceae. The concentrates and phytochemicals of Rubia plants had attracted impressive consideration because of their intense bioactivities.[1]

Traditionally utilized against, joint pain, hack, diabetes, staining of the skin, dysmenorrhea, general weakness, hemorrhoids, hepatopathy, discontinuous fevers, jaundice, leukorrhea, neuralgia, pectoral illnesses, pharyngitis, and furthermore numerous pharmacological activities, though the roots are utilized for purgative, pain relieving, , loss of motion and intestinal ulcers, and so on In these cases, for example, in blood, skin and urinogenital messes, looseness of the bowels, heaps, ulcers, and irritations the stem of rubia is utilized.[2] Studies revealed that this plant as a significant for relieving different sicknesses in customary medication.

Phytochemistry

R. cordifolia (Manjistha) basically known for its anthraquinones and naphthohydroquinones phytochemical constituents.[3] The major phytoconstituents of R. cordifolia reported include

Address for Correspondence: Ankush Chauhan, St. Soldier Institute of Pharmacy, Lidhran Campus, Behind NIT (R.E.C), Jalandhar-Amritsar by pass NH-1 Jalandhar-144011, Punjab, India.
Email:**ankushchauhan611@gmail.com**

How to Cite this Article: Ankush Chauhan, Ajeet Pal Singh, Amar Pal Singh. A Review on Pharmacological effects of Rubia cordifolia. World J Pharm Sci 2021; 9(4): 75-78.

rubiadin, rubicordone A, rubiasins A-C, rubiatriol (triterpenoid), 6-methoxygeniposidic acid an iridoid glycoside and two pentacyclic triterpenoid-rubicoumaric acid, and rubifolic acid. Mollugin, furomollugin, and dehydro-alpha-lapachone are isolated from chloroform fraction.[4-6]

Taxonomic Classification[7]
Kingdom: Plantae
Class: Dicotyledoneae
Subclass: Sympetalae
Order: Rubiales
Family: Rubiaceae
Genus: *Rubia*
Species: *cordifolia.*

Synonyms: Jingi, yojanavalli, samanga, raktanga, bhandi, vikasa, vastraranjani, manjetha, rakta, indianmaddar, manjitha

Traditional uses[8]
Rasa: Tikta (bitter), kashaya (astringent), madhur (sweet)
Guna: Guru (heavy), ruksha (dry)
Veerya: Ushna (hot)
Vipaka: Katu (pungent)
Dosha: Pacifies kapha and pitta
Karma: Varnaropana, Jwarhara, shothahar, kushthaghnaPharmacol

Pharmacological activities of R. cordifolia
The pharmacological activities of R. cordifolia has briefly discussed following are:-

Anti-arthritic Property: The ethanolic concentrate of R. cordifolia has basic enemy of joint potential and it likewise showed paw edema restraint in the incited ligament model, which is like a nonsteroidal calming drug, called aspirin.[9]

Antiulcer Activity: The concentrate showed considerable and huge assurance against gastric ulcers on the whole the models contrasted with ranitidine. In polyherbal plans, the ulcerogenicity impact in rodents showed altogether lesser ulcer impact even at a high measurements when contrasted with that of aspirin.[10]

Cardio protective activity: Rubia cordifolia an individual plant with various exercises is crucial for help heart wellbeing such as for hypolipidemic, diuretic, calcium channel blocker, vasodilator, antiplatelet.[11]

Anti-platelet activating effect: Part of the way refined part of the entire plant restrains the activity of platelet actuating factor at its receptor level either by its impeding or desensitization property.[12]

Sexual Performance and Virility activity: Rubia cordifolia have been approved for their impact on sexual conduct and richness and can, along these lines, fill in as the reason for the distinguishing proof of new compound leads valuable in sexual and erectile brokenness.[13]

Diuretic Activity: The hydro alcoholic extricate just as the ethanol separate showed a huge expansion in pee volume and electrolyte discharge in a portion subordinate way contrasted and the reference drugs.[14].

Antiviral Activity: The methanolic concentrates of leaves have a base inhibitory grouping of various infection utilizing HEL cell societies and Vero cell cultures.[15]

Antiproliferative Property: Aqueous extract of root shows to have animperative of proliferative impact. The antiproliferative property was likewise tried on A-431 cells (epidermal carcinomoid cells) and 3T3 fibroblast cells and recorded that the restraint joining of [3H]-thymidine, is in a portion subordinate way.[16]

Radioprotective Property: When R. cordifolia remove was controlled intra peritoneal before radiation openness. Results recommend the alcoholic root remove gives insurance against radiation-initiated lipid peroxidation, hemopoietic injury and genotoxicity.[17]

Nephrotoxicity: The concentrate could essentially diminish the cisplatin incited nephrotoxicity as induced from the tissue cancer prevention agent status in the medication managed creatures. Noteworthy change was seen in serum creatinine and urea levels. Lipid peroxidation in the kidney and liver tissues was too significantly decreased in Rubia cordifolia extricate treated animals.[18]

Anti-microbial activity: Concentrate of R. cordifolia showed a decent inhibitory action against P. acnes normalized culture.Rubia cordifolia was powerful against The green integrated silver nanoparticles utilizing R. cordifolia plant root separate was profoundly hindering the bacterial microorganisms looking like Plesiomonasshigelloides, Vibrio alginolyticus, Pseudomonas aeroginosa, Shigellaspp, and Vibrio parahaemolyticus. They had most noteworthy antimicrobial impact against Pseudomonas aeroginosa and Plesiomonasshigelloides.[19]

Anti-inflammatory activity: The mitigating activity is a result of the presence of rubimallin. The fluid concentrate showed mitigating movement in rodents with carrageenan paw oedema in a dose

subordinate way, which is tantamount to that of phenylbutazone.[20]

Radio protective Property: R. cordifolia extract was controlled intra peritoneally before radiation openness. Results recommend the alcoholic root separate gives assurance against radiation-incited lipid peroxidation, hemopoietic injury and genotoxicity.[21].

Anti-oxidant activity: The cancer prevention agent properties of R.cordifolia remove for assurance Alcoholic against lipid peroxidation and diminished glutathione (GSH) content in rodent liver homogenate contrasted and nutrient E and parabenzoquinone.[22]

Wound Healing Effect: R.cordifolia, C.asiatica, T.belerica, P.zeylanica, and W.somnifera was defined. Creatures were examined every day up to twentieth days and recuperating was acceptable and produces wound compression, time of epithelization and histological examination. It shows, that there is compression and new epithelization of extraction wound.[23]

Anti-tumour activity: Against tumor action of RC-18, demonstrated from Rubia cordifolia was consistently tried in various arrangements of investigations on a range of exploratory murine tumors, viz. P388, L1210, L5178Y, B16 melanoma, Lewis lung carcinoma and sarcoma-180.[24]

Disclosure Statement: There are no conflicts of interest.

Acknowledgment

It's our privilege to express profound sense of gratitude and cordial thanks to our respected chairman Mr. Anil Chopra, Vice Chairperson Ms. Sangeeta Chopra & Pro-Chairman Mr. Prince Chopra, St. Soldier Educational Society, Jalandhar for providing the necessary facilities to complete this work.

REFERENCES

1. Bhatt D et al. Indigenous uses of medicinal plants by the Vanraji tribes of Kumaun Himalaya. India.J. Med. Plants Res2013; 7:2747-2754.
2. Pathania S et al. Comparative studies of Rubia cordifolia L. And its commercial samples. Ethnobotanical Leaf 2006; 11:179-88.
3. Itokawa H et al. Anthraquinones and naphthohydroquinone from Rubia cordifolia. Phytochemistry 1989; 28:3465-8.
4. Chang LC et al. Rubiasins A-C, new anthracene derivatives from the roots and stems of Rubia cordifolia. Tetrahedron Lett 2000; 41:7157-62.
5. Arisawa M et al.Rubiatriol, a new triterpenoid from the Chinese drug "Qian Cao Gen," Rubia cordifolia. J Nat Prod 1986; 49:1114-6.
6. Li X et al. Rubiacordone A: A new anthraquinone glycoside from the roots of Rubia cordifolia. Molecules 2009; 14:566-72.
7. Verma Aet al.Rubia cordifolia –a review on pharmaconosy and phytochemistry.int j of pharma sci res 2016;7(7):2720-2731.
8. Sharma PV,DravyagunaVijnana. Chaukhambha Bharti Academy, Varanasi, 1969;2-3,pp. 928.
9. Jaijesh P et al. Anti-arthritic property of the plant Rubia cordifolia Linn. Pharmacology online 2008; 1:107-13.
10. Kalra p et al.Antiulcer potential of rubiacordifolialinn. In experimental animals, int. J. Green pharm 2011;5:149-154.
11. Patil RA et al. Antihyperglycemic, antistress and nootropic activity of roots of Rubia cordifolia, Linn. Indian J. Exp. Biol2006; 44:987-992.
12. Tripathi YB et al.Anti-platelet activating factor property of Rubia cordifolia, Indian J. Exp. Biol 1993; 31:533-535.
13. Chauhan NS et al. A Review on Plants Used for Improvement of Sexual Performance and Virility, BiomedResearch International Volume2014; 19:868062.
14. Tripathi YB et al. Rubiadin, a new antioxidant from Rubia cordifolia. Indian J Biochem Biophys 1997;34:302-6
15. Prajapati SN, Parmar KA. Anti-viral and in vitro free radical scavenging activity of leaves of Rubia cordifolia. Int J Phytomed 2011; 3:98-107.
16. Tse WP et al. Evaluation of the anti-proliferative properties of selected psoriasis-treating Chinese medicines on cultured haCaT cells. J Ethnopharmacol 2006; 108:133-41.
17. Mischenko NP etal. Chemical composition andpharmacological activity of anthraquinones from Rubiacordifolia cell culture. Pharm. Chem. J 2007; 41:605-609.

18. Chitra V, Kumar KP. Neuroprotective studies of Rubia cordifolia Linn. on β- amyloid induced cognitive dysfunction in Mice, Int. J Pharm. Tech. Res 2009;1:1000-1009.
19. Gorle AM, Patil SS. Evaluation of antioxidant and antiacne property of Rubia cordifolia. Der Pharmacia Sinica. 2010; 1 (3):59-63.
20. Tripathi Y Betal. Rubia cordifolia inhibits potato lipoxygenase.88. Indian J. Exp. Biol1995; 33: 109-112.
21. Mischenko NP etal.Chemical composition and pharmacological activity of anthraquinones from Rubia cordifolia cell culture. Pharm. Chem. J 2007;41:605-609
22. Tripathi YBet al. Antioxidant property of Rubia cordifolia extract and its comparison with vitamin E and parabenzoquinone. Phytotherapy research .1995; 9(6): 440–443..
23. Biswastketal. Plant medicines of indian origin for wound healing activity: a review, int. J. Lowextrem. Wounds 2003;2: 25-39.
24. Adwankar MK, Chitnis MP. In vivo anti-cancer activity of RC-18: A plant isolate from Rubia cordifolia Linn. against a spectrum of experimental tumour models. Chemotherapy 1982; 28(4):291-293.