



Review Article

The herbal remedies and their bioactive compounds mechanism for treatment of arthritis: an overview

Atul Shukla, Vimal Kumar Yadav, Vishnu Prasad Yadav, Vineet Bharti, Ajay Kumar Shukla*

Institute of Pharmacy, Dr Rammanohar Lohia Avadh University, Ayodhya, Uttar Pradesh, India

Corresponding author: Ajay Kumar Shukla, ✉ ashukla1007@gmail.com, **Orcid Id:** <https://orcid.org/0000-0001-5689-3467>

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Received - 10-18-2025, **Revised** - 15-12-2025, **Accepted** - 25-01-2026 (DD-MM-YYYY)

Refer this article

Amit Mane, Yogesh Khairmode, Deepak B Anap, Saqib Syed, Nilesh Dond, Jaya Pathak, The effectiveness of telerehabilitation-based physiotherapy on patient satisfaction in a rural population: a questionnaire-based study, *Journal of Health Physiotherapy and Orthopaedics*. January-February 2026, V 3 - I 1, Pages - 24 – 27. Doi: <https://doi.org/10.55522/jhpo.V3I1.0069>.

ABSTRACT

Arthritis problems most common found in older person due to inflammation and autoimmune disease. The symptoms of this disease are swelling, stiffness and pain. Many synthetic drugs are available for the treatment of arthritis, but after long-term use of the drug, some side effects. These drugs are the cure for health disorders, therefore peoples of now days, especially those with chronic disease go towards the ayurvedic treatment. In the Ayurvedic treatment, it has been found that many herbal drugs can cure this disease and reduce the inflammation and reduce the pain. In this article, we covered all the factors and discussed the potential herbs that have the ability to cure these health disorders.

Keywords: Anti-arthritis, Inflammatory, Rheumatoid arthritis, Herbal remedies.

INTRODUCTION

Rheumatoid arthritis is also known as one of the chronic inflammatory problems of joints and the 'King of Human Miseries'. It is a type of autoimmune chronic inflammatory disease. The symptoms of this disease are swelling, stiffness, pain in joints; reduce the quantity of synovial joint fluid, destruction of bones and auto-antibodies [1-4]. It has been found that about 1% of the person of the world suffering this problem. Some researchers have reported that these joint problems are mostly seen in people who are becoming old, overweight, have irregular eating habits, hormonal disorders, alcoholic and irregular lifestyle [5].

Many synthetic drugs are available for the treatment of arthritis, but long-term use of these drugs produces some side effects. These drugs are the cure for health disorders, therefore peoples of now days, especially those with chronic disease go towards the ayurvedic treatment. In the ayurvedic treatment, it has been found that many herbal drugs can cure

this disease and reduce the inflammation of and reduce the pain. In this article, we covered all the factors and discussed the potential herbs that have the ability to cure these health disorders. Some names of herbal plants are traditionally used for the treatment and management of Rheumatoid arthritis, as discussed in below in tabulated form [6, 7].

Anti-arthritis activity mechanism of plants and their bioactive compounds The anti-inflammatory mechanism of *Brassica oleracea* L. seeds

Rheumatoid arthritis is a progressive autoimmune disorder that worsens over time. The present study demonstrated that *Brassica oleracea* L. seed extract contains twelve phenolic compounds with significant anti-arthritic potential. Both the extract and IL-1RA showed protective effects by reducing inflammation, oxidative stress, and joint damage. These findings highlight the extract as a potential nutraceutical and suggest IL-1RA as a novel therapeutic option for RA, warranting further clinical investigation.

Table 1: List of anti-arthritis plants

Botanical Name	Family	Parts Used	Solvents Used
<i>Abrus precatorius</i>	Leguminosae	Seed	Ethanol
<i>Acalypha alopeuroioides (jacq.)</i>	Euphorbiaceae	Aerial parts	Chloroform, methanol and water
<i>Ajuga bracteosa</i>	Labiatae	Whole plant	Ethanol
<i>Ammania baccifera linn</i>	Lythraceae	Whole plant	Ethanol and water
<i>Anisomeles malabarica</i>	Lamiaceae Labiatae	Leaves	Methanol
<i>Aristolochia bracteata</i>	Aristolochiaceae	Whole plant	Methanol
<i>Asystatica dalzelliana</i>	Acanthaceae	Leaves	Methanol
<i>Bacopa monniera</i>	Scrophulariaceae	Fresh whole plant	Methanol
<i>Barringtonia racemosa</i>	Lecythidaceae	Fruits	Methanol
<i>Borassus flabellifer</i>	Areaceae	Male flowers	Ethanol
<i>Boswellia serrata</i>	Burseraceae	Gum resin	N-hexane
<i>Capparis erythrocarpos</i>	Capparaceae	Roots	Ethanol
<i>Capparis spinosa</i>	Capparaceae	Fruits	Ethanol water
<i>Cassia uniflora</i>	Cesalpiniaceae	Leaves	Methanol, petroleum ether, ethyl acetate
<i>Centenella asiatica</i>	Apiaceae	Fresh whole plant	Methanol
<i>Chlorophytum borivilianum</i>	Liliaceae	Roots	Alcohol, water
<i>Cissampelos pareira</i>	Menispermaceae	Roots	Aqueous ethanol
<i>Cleodendron inerme</i>	Verbenaceae	Leaves	Petroleum ether, ethanol
<i>Cleome rutido rutidosperma</i>	Capparidaceae	Whole plant	Ethanol (90%)
<i>Cocculus hirsutus</i>	Menispermaceae	Leaves	Ethanol
<i>Coldenia procumbens</i>	Boraginaceae	Leaves	Methanol
<i>Cyperus esculantus</i>	Cyperaceae	Essential oil	Ethyl acetate
<i>Cyperus rotundus</i>	Cyperaceae	Essential oil	Ethyl acetate
<i>Delonix elata</i>	Caesalpiniaceae	Barks	Pet.Ether, chloroform and hydroalcohol
<i>Euphorbia antiquorum</i>	Euphorbiaceae	Whole plant	Water and ethanol
<i>Euphorbia tirucalli</i>	Euphorbiaceae	Stem, bark, leaves	Methanol
<i>Glycerriza glabra</i>	Leguminosae	Rhizome	Methanol
<i>Gymnema sylvestre</i>	Asclepiadaceae	Leaves	Petroleum ether, ethyl acetate and alcohol, chloroform water
<i>Hybanthus emneaspermus</i>	Violaceae	Plant	Ethanol
<i>Jatropha gossypifolia</i>	Euphorbiaceae	Leaves	Ethanol
<i>Justicia gendarussa burm</i>	Acanthaceae	Leaves	Ethanol
<i>Lawsonia inermis</i>	Lythraceae	Leaves	Aqueous ethanol
<i>Manilkara zapota</i>	Sapotaceae	Leaves	Ethanol
<i>Merremia tridentate</i>	Convolvulaceae	Root and aerial parts	Ethanol
<i>Naravalia zeylanica</i>	Ranunculaceae	Aerial parts	Petroleum ether, chloroform and ethanol
<i>Newbouldia laevis</i>	Bignoniaceae	Bark	Ethanol
<i>Portulaca oleracea</i>	Portulacaceae	Leaves	Petroleum-ether
<i>Premna serratiflora</i>	Verbenaceae	Wood (without bark)	Ethanol
<i>Rubia cordifolia</i>	Rubiaceae	Roots	Ethanol
<i>Sesbania grandiflora</i>	Leguminosae	Dried bark	Chloroform, petroleum ether, methanol
<i>Sesbania sesban</i>	Leguminosae	Dried bark	Chloroform, methanol, petroleum ether
<i>Strobilanthus callosus nees</i>	Acanthaceae	Stem	Pet ether, chloroform and Methanol
<i>Strobilanthus ixiocephala benth</i>	Acanthaceae	Stem	Chloroform and Methanol
<i>Strychnos potatorum</i>	Loganiaceae	Whole seeds	Water
<i>Tinospora cordiflora</i>	Menispermaceae	Dry bark	Water
<i>Urginea indica</i>	Liliaceae	Whole plant	Ethanol
<i>Urtica pilulifera</i>	Urticeaeae	Leaves	Methanol
<i>Vernonia anthelmintica</i>	Asteraceae	Seeds	Ethanol, acetonitrile
<i>Vitex negundo</i>	Verbenaceae	Leaves	Ethanol
<i>Wedelia calendulacea</i>	Asteraceae	Fresh leaves	Methanol

Sargentodoxa cuneata

Sargentodoxa cuneata, a traditional Chinese medicinal plant, exhibits diverse pharmacological properties including anti-inflammatory, antioxidant, antimicrobial, antitumor, and anti-sepsis activities. It has been found that 110 bioactive compounds are reported; these compounds have potential anti-arthritis activity, but still need to undergo more clinical research for confirmation and check the compounds for therapeutic efficacy and safety after the confirmation. These compounds give an idea for the development of novel drug concepts [8].

Daphnetin

It coumarin derivative having potential anti-arthritis activity, but we need to do more scientific research work for confirmation and check the compounds for therapeutic

efficacy and safety. After the confirmation, these compounds give an idea for the development of a novel drug concept.

p-Coumaric acid and its derivatives

It is another coumarin derivative, have been found to possess multiple actions and is found to be effective in the treatment and management of arthritis. Some other therapeutic activities of this compound are antibacterial, anti-inflammatory, anticancer, antioxidant, and metabolic disease-modifying properties [9].

Achyranthes

It is a very common plant and found throughout the year in the tropical and subtropical regions of India. It is traditionally used for the treatment of wounds, childbirth, skin infections, arthritis and dental diseases, etc. These activities behind of this plant are the presence of many

bioactive compounds are Ketosteroids, polysaccharides, polypeptides, and saponins [10].

Madecassoside

It is famous for the treatment of memory enhancement, but this plant is also traditionally used in arthritis treatment. It enhances the immune action and anti-inflammatory activity. Therefore, this plant is effective in the treatment of arthritis. Some other names of anti-arthritis plants and their applications is discussed in Table 2.

Modern research and future prospects

In modern days, research has become more advanced and is taking research work with the help of

advanced artificial technologies. These technologies provide scientific results and correlate disease causes, validate the problems and resolve the diseases by the exact causes. Many critical diseases like arthritis, asthma, skin diseases, diabetes, and hypertension are resolving the problems by the help of personalised medicine therapy. The arthritis one of the more problematic health disorders, where taking the herbal medicines by the peoples and manages these problems, but the exact mechanism and bioactive compounds need to be found out in future [11-15].

Table 2: Names of anti-arthritis plants, bioactive compounds and their applications

Name of plants	Bioactive compounds	Applications
Angelica biserrata	Coumarins, volatile oils	Neuroprotective, anti-inflammatory, anti-arthritic
Boldine	Aporphine alkaloid	Antioxidant, hepatoprotective, anti-inflammatory, neuroprotective, anticancer, nootropic
Peumus boldus	Flavonoid	Antioxidant, anti-inflammatory, anticancer, antimicrobial, antidiabetic, organ-protective
Morin hydrate	Phenolic ketone	Anti-arthritic, antioxidant, anti-inflammatory
Moraceae family	Diterpenoid	Anti-inflammatory, anti-arthritic
Dehydrozingerone (DHZ)	Hexane fraction phytoconstituents	Anti-arthritic, immunomodulatory, hypolipidemic
Euphorbia Factor L2 (EFL2) Euphorbia seeds		
Costus afer leaves (CAHLF)		

CONCLUSION

Arthritis is related to joint disorders; it is found all over the world, especially in old age, heavy weighted alcoholic and persons with irregular lifestyles. Therefore, need to maintain our weight, regular diet, maintain our life style do some physical activity. Some herbs are traditionally used to manage these health issues, but more research is needed to present scientific data behind the role of plants. So that novel drug able comes in market at a lower price in future.

REFERENCES

- Jalalpure SS, Patel KN, Patel MA, et al, 2006. Search for medicinal plants as a source of anti-inflammatory and anti-arthritic agents: a review. *Pharmacogn Mag.* 2(6), 77–86. doi:10.4103/0973-1296.294.
- Kaithwas G, Gautam R, Jachak SM, 2012. Antiarthritic effects of *Ajuga bracteosa* Wall ex Benth in acute and chronic models of arthritis in albino rats. *Asian Pac J Trop Biomed.* 2(3), Pages 185–8. Doi:10.1016/S2221-1691(12)60039-2.
- Hamed MA, Aboul Naser AF, Aboutabl ME, et al, 2021. Bioactive compounds and therapeutic role of *Brassica oleracea* L. seeds in rheumatoid arthritis rats via regulating inflammatory signalling pathways and antagonizing interleukin-1 receptor action. *Biomarkers.* 26(8), Pages 788–807. Doi: 10.1080/1354750X.2021.1999504.
- Zhang W, Sun C, Zhou S, et al, 2021. Recent advances in chemistry and bioactivity of *Sargentodoxa cuneata*. *J Ethnopharmacol.* 270, Pages 113840. Doi: 10.1016/j.jep.2021.113840.
- Hang S, Wu W, Wang Y, et al, 2022. Daphnetin, a coumarin in genus *Stellera chamaejasme* Linn.: chemistry, bioactivity and therapeutic potential. *Chem Biodivers.* 19(9), Pages e202200261. Doi: 10.1002/cbdv.202200261.
- Pei K, Ou J, Huang J, 2016. *p*-Coumaric acid and its conjugates: dietary sources, pharmacokinetic properties and biological activities. *J Sci Food Agric.* 96(9), Pages 2952–62. Doi:10.1002/jsfa.7578.
- He X, Wang X, Fang J, et al, 2017. The genus *Achyranthes*: a review on traditional uses, phytochemistry, and pharmacological activities. *J Ethnopharmacol.* 203, Pages 260–278. Doi: 10.1016/j.jep.2017.03.035.
- Wang T, Wei Z, Dou Y, et al, 2015. Intestinal interleukin-10 mobilization as a contributor to the anti-arthritis effect of orally administered madecassoside. *Biochem Pharmacol.* 94(1), Pages 30–8. Doi: 10.1016/j.bcp.2015.01.004.
- Ma J, Huang J, Hua S, et al, 2019. The ethnopharmacology, phytochemistry and pharmacology of *Angelica biserrata*: a review. *J Ethnopharmacol.* 231, Pages 152–169. Doi: 10.1016/j.jep.2018.10.040.
- Lamba D, Dwivedi DK, Yadav M, 2024. Boldine: a narrative review of the bioactive compound with versatile biological and pharmacological potential. *J Complement Integr Med.* 21(3), Pages 269–281. Doi: 10.1515/jcim-2023-0224.
- Lamba D, Dwivedi DK, Yadav M, 2024. Boldine: a narrative review of the bioactive compound with versatile biological and pharmacological potential. *J Complement Integr Med.* 21(3), Pages 269–281. Doi: 10.1515/jcim-2023-0224.
- Rajput SA, Wang XQ, Yan HC, 2021. Morin hydrate: a comprehensive review on novel natural dietary

- bioactive compound with versatile biological and pharmacological potential. *Biomed Pharmacother.* 138, Pages 111511. Doi: 10.1016/j.biopha.2021.111511.
13. Liu C, Li Y, Wen C, et al, 2022. Dehydrozingerone alleviates hyperalgesia, oxidative stress and inflammatory factors in complete Freund's adjuvant-induced arthritic rats. *Drug Des Devel Ther.* 16, Pages 3015–3022. Doi: 10.2147/DDDT.S374827.
 14. Tang J, Cheng X, Yi S, et al, 2021. Euphorbia factor L2 ameliorates the progression of K/BxN serum-induced arthritis by blocking TLR7-mediated IRAK4/IKK β /IRF5 and NF- κ B signaling pathways. *Front Pharmacol.* 12, Pages 773592. Doi: 10.3389/fphar.2021.773592.
 15. Anyasor GN, Onajobi FD, Osilesi O, 2015. Haematological and lipid profile evaluation of a hexane fraction of *Costus afer* leaves in arthritic rats. *Pharm Biol.* 53(11)1671–1676. Doi: 10.3109/13880209.2014.1001404.