



AN UPDATED REVIEW ON ANTI-ARTHRITIC MEDICINAL PLANTS

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ABSTRACT

Arthritis is a chronic, inflammatory, systemic autoimmune disease characterized by pain, swelling and stiffness. Allopathic medications have been prescribed to alleviate symptoms of this disease which results into associated side effects like gastrointestinal bleeding and bone loss (osteoporosis). The use of herbal medicine becoming popular due to toxicity and side effects of allopathic medicines. Medicinal plants play an important role in the development of potent therapeutic agents. In this review an attempt has been done to highlight the work on medicinal plants having Anti-arthritis potential. The present paper also involves various plant drugs along with their chemical constituents and pharmacological profile which focus on the dose administered, bioactive extract involved in anti-arthritis mechanism. This work stimulates the researchers for further research on the potential use of medicinal plants having anti- arthritis property.

Keywords: Arthritis, inflammatory, extract, medicinal plants.

INTRODUCTION

Arthritis is an auto immune disorder characterized by pain, swelling and stiffness. Its prevalence depends upon age. It is an inflammation of synovial joint due to immunomediated response. Rheumatoid arthritis has 19th century roots and a 20th century pedigree. Although its name was introduced in the 1850s. Rheumatoid arthritis is characterised by persistent synovitis, systemic inflammation and auto antibodies (particularly to rheumatoid factor and citrullinated peptide). Rheumatoid arthritis (RA) is a chronic, inflammatory, systemic autoimmune disease that affects about 1% of the general population in Western countries and is two to three times more common in women than in men. It is characterized by both local and systemic inflammation with elevated plasma concentration of pro-inflammatory cytokines, such as interleukins - 6 (IL-6), interleukin 1b (IL-1b), tumor necrosis factor-alfa (TNF-a), and acute phase proteins. Conventional treatments for RA, including Non-steroidal Anti-inflammatory Drugs (NSAID's), disease modifying anti-rheumatoid drugs (DMARD's) and corticosteroids, aim to reduce the patient's pain and joint inflammation, minimize loss of function and decrease the progression of joint damage. Much of the joint damage that ultimately results in disability begins early in the course of the disease. In one study, for example, more than 80 percent of

patients with rheumatoid arthritis of less than two years duration had joint space narrowing on plain radiographs of the hands and wrists, while two-thirds had erosions. Certain clinical features may help in predicting which patients with early arthritis will go on to develop progressive and erosive disease. An appreciation of the pathogenic mechanisms of rheumatoid arthritis and the poor outcomes with conventional therapy led to the concept of effective treatment of newly diagnosed or early aggressive disease to suppress ongoing inflammation and prevent joint injury. By comparison, the management of patients with end-stage disease in whom active inflammation is much less significant is focused principally upon the relief of pain and the improvement or maintenance of function. However, such treatments are rarely totally effective and some pharmacological therapies have the potential to cause side effects⁴. All anti inflammatory drugs are not anti-arthritis because it does not suppress T-cell and B-cell mediated response¹. Rheumatoid arthritis is associated with poor nutritional status in relation to various nutrients due to not only because of increased requirements and reduction in their absorption but also due to NSAID's, DMARD's and corticosteroids prescribed to alleviate symptoms of this disease.

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Table 1: list of anti-arthritic medicinal plants

Botanical Name	Family	Parts Used	Solvents Used	Chemical Constituents	Screening Methods	References
<i>Anisomeles malabarica</i>	Lamiaceae (labiatae)	leaves	Methanol	Steroids, flavanoids and terpenoids	Human blood cell, memberane stabilisation method	Lavanya et al[1]
<i>Aristolochia bracteata</i>	Aristolochiaceae	Whole plant	methanol	Aristolochic acid, alkaloids, flavanoids.	Complete Freund's Adjuant (CFA) induced model	Havagiray R.chitme and nitin et al[2]
<i>Asystatica dalzelliana</i>	Acanthaceae	leaves	methanol	Steroids, flavanoids, alkaloids, tannins	Inhibition of protein denaturation method	Kumar et al[3]
<i>Bacopa monniera</i>	scrophulariaceae	Fresh whole plant	methanol	Alkaloids, flavanoids, bacosides, Triterpenoids and saponins	Inhibition of protein denaturation, memberane stabilization, proteinase inhibition method	Meena vangalapati et al[4]
<i>Barringtonia racemosa</i>	Lecythidaceae	Fruits	Methanol	Barbotonic acid	Complete frenud's adjuant induced model	Kalpesh, ramdas patil et al[5]
<i>Borassus flabellifer</i>	Areaceae	Male flowers	Ethanol	Steroids, saponins, borassosides.	Carrageen an induced edema, cotton-pellet induced granuloma.	Mahesh Paschapur et al[6]
<i>Boswelia serrata</i>	Burseraceae	Gum resin	n-hexane	Carbohydrates, Terpenoids, gums, mucilages	Complete Freund's Adjuant (CFA) induced model(in rat)	Mishra[7]
<i>Cassia uniflora</i>	Cesalpinaceae	Leaves	Methanol, petroleum ether, ethyl acetate	Proteins, poly phenols, alpha galactosidase	Complete Freund's Adjuant (CFA) model	Sheetal chaudhari[8]
<i>Centenella asiatica</i>	apiaceae	Fresh whole plant	methanol	Alkaloids, flavanoids, phenollic compounds, glycosides.	Inhibition of protein denaturation, memberane stabilization, proteinase inhibition method	Meena vangalapati et al[9]
<i>Cissampelos Pareira</i>	Menispermaceae	Roots	Aqueous ethanol	Alkaloids, flavanoids	Acetic acid induced arthritis, Complete Freund's Adjuant (CFA) induced model	Amresh et al[10]
<i>Cleodendron inerme</i>	Verbenaceae	Leaves	Petroleum ether, Ethanol.	Steroids, tannins, alkaloids and Flavonoids.	Inhibition of protein denaturation method	Sangeetha et al[11]

<i>Cleome rutidosperma</i>	Capparidaceae	Whole plant	Ethanol (90%)	Alkaloids, carotinoids, flavanoids, phytates, saponins, tannins	Cotton pellet granuloma method and Freund's Adjuvant (CFA) induced model	Chakraborty[12]
<i>Coldenia procumbens</i>	Boraginaceae	Leaves	Methanol	Steroids, flavanoids and terpenoids	Inhibition of protein denaturation model	Lavanya[13]
<i>Cyperus esculantus</i>	Cyperaceae	Essential oil	Ethyl acetate	Flavonoids, triterpenoids, carbohydrates	Formaldehyde induced model	Sandeep Biradar et al[14]
<i>Cyperus rotundus</i>	Cyperaceae	Essential oil	Ethyl acetate	Flavonoids, triterpenoids, carbohydrates	formaldehyde induced model and carrageenan induced model	Sandeep Biradar et al[14]
<i>Euphorbia tirucalli</i>	Euphorbiaceae	Stem, bark, leaves	Methanol	Flavanoids, Diterpenes, tannins, steroids and alkaloids	Mycobacterium tuberculosis induced adjuvant arthritis test in rats	Priya and Rao[15]
<i>Glycerriza glabra</i>	Leguminosae	Rhizomes	Methanol	Flavanoids, liquiritin, and isoliquiritin	Complete Freund's Adjuvant (CFA) induced model	Mishra[16]
<i>Lawsonia inermis</i>	Lythraceae	Leaves	Aqueous ethanol	Alkaloids, carbohydrates, glycosides, phytosterols, Saponins, tannins, proteins, flavanoids	Formaldehyde Induced Arthritis and Complete Freund's Adjuvant (CFA) induced model	Kore.kj et al[17]
<i>Merremia tridentate</i>	Convolvulaceae	Root and aerial parts	Ethanol	Ergosie alkaloids, pyrrolidine alkaloids	Complete Freund's Adjuvant (CFA) induced model	Gopala krishnan et al[18]
<i>Premna serratiflora</i>	Verbenaceae	Wood (without bark)	Ethanol(90%)	Alkaloids, steroids, tannins, flavanoids and glycosides	Adjuvant induced arthritis	Rajendran R and Krishna kumar E[19]
<i>Sesbania grandiflora</i>	Leguminosae	Dried bark	Chloroform, petroleum ether, methanol	Proteins, phenolics, linoleic acid, b-sitosterol	Carrageenan induced model	Patil et al[20]
<i>Sesbania sesban</i>	Leguminosae	Dried bark	Chloroform, methanol, petroleum ether	Saponins, coumaryl lignins, triterpenoids	Carrageenan induced and formaldehyde induced model	Patil et al[20]
<i>Strychnous potatorum`</i>	loganiaceae	Whole seeds	water	Saponin glycosides, B-sitosterol, carbohydrates	Complete Freund's Adjuvant (CFA) model	Sanmuga priya ekambaram et al[21]
<i>Tinospora cordiflora</i>	menispermaceae	Dry bark	water	Alkaloids, glycosides, steroids, polysaccharides	Freund's complete adjuvant (FCA) model	Paval.s.k. Kaitheri et al[22]

<i>Urginea indica</i>	Lilliaceae	Whole plant	Ethanol or alcoholic extraction	Alkaloids, flavanoids	Inhibition of protein denaturation method	Rehaman et al[23]
<i>Vernonia anthelmintica</i>	Asteraceae	Seeds	Ethanol, acetonitrile	Sterols,sequiterpene lactones,flavones	Complete Freund's Adjuvant (CFA) model	Otari K.V shete et al[24]
<i>Vitex negundo</i>	Verbenaceae	Leaves	Ethanol	Carbohydrates, sterols, alkaloids, glycosides, flavanoids, phenolic compounds	Complete Freund's Adjuant (CFA) induced rat model	Ramesh petchi. R. et al[25]

CONCLUSION

Plants have been a prime source of highly effective conventional drugs for the treatment of many forms of arthritis. From the above review it should be evident that there are many medicinal plants which exert anti-arthritic activity at a particular dose. This review

makes an attempt to give scientific account of use of valuable medicinal plants extracts in arthritis.

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