



Review Article

Use Of Herbal Medications For Treatment Of Osteoarthritis And Rheumatoid Arthritis

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ABSTRACT

Arthritis is an chronic condition.more than the 100 types of arthritis are found .Osteoarthritis (OA) and Rheumatoid arthritis (RA) are two major type of arthritis .it is A systemic disease that affect the severe joints of the body .It is the chronic inflammatory disease that affect the joint of various among patients .It can cause many complications such as permanent damage to the joints . Its risk factors are the Age, Gender, and Genetics. (Cigarette Smoking and pollution area) Pharmacological treatment are the only option for the treatment of arthritis when the non pharmacological therapy was insufficient. Management often involves a combination of medication, physical therapy, lifestyle adjustments, and in some cases, surgical intervention to alleviate symptoms and improve joint function. Early diagnosis, proper treatment, and lifestyle adjustments are vital to manage the symptoms and maintain joint function in individuals with arthritis. Regular monitoring and adapting treatments as needed can significantly improve the quality of life for those affected by arthritis. Pharmacological treatment has several side effects and it's very expensive than the alternative non pharmacological treatment has been investigated, Herbal Medication have shown the ability for safe and effective treatment of arthritis. Several herbs and supplements have been suggested for their potential anti-inflammatory or pain-relieving properties in managing arthritis. However, scientific evidence supporting their effectiveness is often limited and varies among individuals. Herbs have the strong anti-inflammatory and anti-oxidants activities. Herbal medication are required for the determination of safety and bioavailability. Here we present a brief summary of the herbal medication for the osteoarthritis (OA) and Rheumatoid arthritis (RA).

INTRODUCTION

Herbal medications have been a source of treatment and relief for various health conditions, including osteoarthritis and rheumatoid arthritis.

The two most common types are osteoarthritis and rheumatoid arthritis. Both osteoarthritis and rheumatoid arthritis weaken joint structure and

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function, but differ in symptoms, pathophysiology, and treatment. [1] Rheumatoid arthritis: - Rheumatoid arthritis (RA) is a chronic symmetrical inflammatory autoimmune disease that initially affects small joints, progresses to larger joints, and then affects the skin, eyes, heart, kidneys and lungs. [2] The bones and cartilages of the joints are often destroyed, and the tendons and ligaments weaken. All this joint damage causes 'deformity and bone erosion, which is usually very painful for the patient. Common symptoms of rheumatoid arthritis are morning stiffness in the affected joints 30 min, fatigue, fever, weight loss, tender, and hot joints and subcutaneous rheumatoid arthritis[3] (Fig.1)

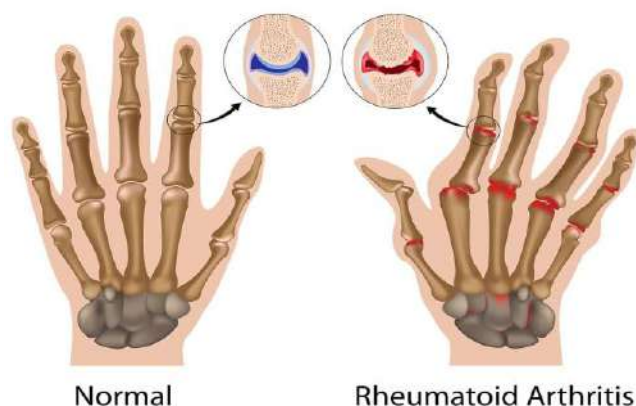


Fig. (1) It is an example of joint damage associated with rheumatoid arthritis, it is visible in 5th stage of rheumatoid arthritis

Osteoarthritis

Osteoarthritis is a degenerative joint disease that commonly affects the knees, hips, hands, and spine. [4] It involves the breakdown of cartilage in the joints, leading to pain, stiffness, swelling, and reduced range of motion. Osteoarthritis is characterized by the gradual breakdown of cartilage and bones within the joints, leading to pain, stiffness, and reduced mobility. [5] Treatment may include pain management, exercise, physical therapy, and in some cases, surgery. The diagnosis of osteoarthritis is clinically based despite the widespread overuse of imaging methods. Management should be tailored

to the presenting individual and focus on core treatments, including self-management and education, exercise, and weight loss as relevant. [6] Its often associated with age, as wear and tear on joints accumulate over time. However, previous joint injuries, genetic factors, obesity, and joint overuse can contribute to its development, it has degenerated meniscus and degenerated cartilage [7] (Fig.2)



Fig.(2)-This is the most advanced stage of osteoarthritis in the knee, the symptoms are undeniable. Patients in stage 4 osteoarthritis can experience tremendous pain and discomfort when they walk or move the knee joint

RISK FACTOR OF RHEUMATOID ARTHRITIS:-

- A) Genetics: Having a family history of rheumatoid arthritis increases the risk of developing the condition. [8]
- B) Environmental Factors: Exposure to certain environmental factors, such as pollutants or infectious agents, may contribute to the risk. [9]
- C) Smoking: Smoking tobacco significantly raises the risk of developing rheumatoid arthritis, and it can also make the condition more severe.

RISK FACTOR OF OSTEOARTHRITIS:-

- A) **Age:** Osteoarthritis risk increases with age. As individuals get older, the cartilage in the joints can wear down, leading to osteoarthritis.
- B) **Joint Injury:** Previous joint injuries, such as fractures or ligament tears, can increase the risk of developing osteoarthritis in those specific joints. [10]
- C) **Obesity:** Excessive weight puts extra stress on the joints, particularly on the knees, hips, and

spine, which can contribute to the development or progression of osteoarthritis.

D) **Genetics:** Family history can play a role. If a close family member has osteoarthritis, there might be an increased likelihood of developing it. [11]

E) **Repetitive Stress on Joints:** Certain occupations or activities involving repetitive movements or stress on specific joints can lead to the development of osteoarthritis. For instance,

jobs that involve frequent kneeling, bending, or heavy lifting. [12]

F) **Joint Misalignment:** Structural abnormalities or joint misalignment can predispose individuals to osteoarthritis.

I) **Muscle Weakness:** Weak muscles around the joints can't provide adequate support, leading to joint instability and potentially increasing the risk of osteoarthritis.

Herbal medicine for treatment of OA and RA:

Disease	Herbal Medicine	Dosage (Per Day)	Treatment Time (Day)	Mechanism of Action	Clinical Implication (For both OA and RA Treatment)
Osteoarthritis	Boswell	100 or 10 drops (oil)	40–120	inhibit the production of inflammatory mediators, such as COX-2, TNF- α , and ROS	Herbal medications exhibit strong anti-inflammatory and antioxidative activities. And show anti-arthritis activity
	Curcuma	180 or 150 mg	28-56	→ reducing apoptosis of chondrocytes and synovial fibroblasts.	
	Economia Ulmoides	1g extract or 36g g powder	28 or 84	Slowing degradation of the extracellular matrix of cartilage and bone and reducing osteoclast formation and bone resorption.	
	Withania Somnifera	125 or 250 mg	8 or 28	Significantly decreased the severity of arthritis.	Herbal medications mimic anti-arthritis activities, as shown in the treatment of current medications, with fewer adverse effects.
	Zingiber	50 g	30-84	Promote collagen synthesis	Moderately beneficial for reducing effects
Rheumatoid arthritis	Eremostachys Laciniata	0.5% topical ointment	14	Inhibit the production of, leukotriene B4, NO, ROS, and other pro-inflammatory mediators.	Herbal medications could also enhance the anti-arthritis activities.
	Matric aria Chamomilla L.	6g	42		
	Paeonia	1.8 g	168	Induce apoptosis in lymphocytes and synovial fibroblasts and inhibit their proliferation.	

	Tripterygium wilfordii Hook F	30-570 mg	112-168	Inhibit the production of histamine and bradykinin.	
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Clinical trials of herbs:-

Boswellia: - also known as frankincense, has been used in traditional Ayurvedic medicine for centuries. This herb has anti-inflammatory effects, including inhibition of microsomal prostaglandin E2 (PGE2) synthase-1 and 5-lipoxygenase, inflammatory mediators such as matrix metalloproteinase (MMP)-9, MMP-13, cyclooxygenase (COX)-2 (COX). -2, production or activation reducing effect. And nitric oxide (NO) and analgesic and anti-inflammatory effects. [12] Boswellia is thought to affect arthritis by improving knee joint space, reducing osteophytes, and reducing inflammatory mediators associated with knee osteoarthritis (OA), such as C-reactive protein and hyaluronic acid.[13]

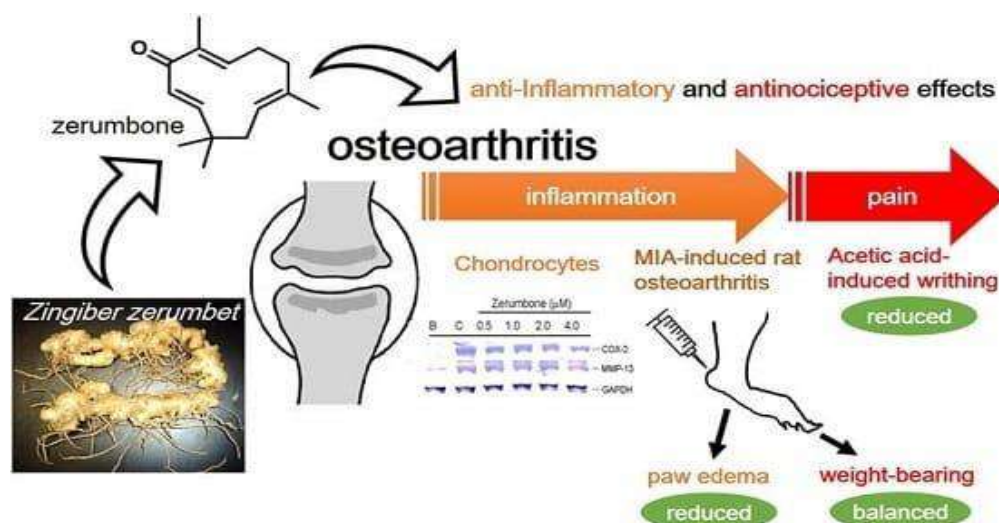
Turmeric:-Turmeric root is a spice commonly known as turmeric. Curcumin, a polyphenolic extract of turmeric, is known for its anti-inflammatory and antioxidant properties and has a long history in traditional Chinese and Ayurvedic medicine. [14] The anti-inflammatory effect of turmeric may be due to several mechanisms. Turmeric treatment has been found to strongly inhibit the production of inflammatory mediators such as interleukin (IL)-1, tumor necrosis factor-alpha (TNF- α), IL-8, NO, and several MMPs, reducing inflammatory pain activation. [15] NF- κ B, protein kinase B (Akt) and MAPK signaling pathways. Its effectiveness can vary, and more research is needed. If considering curcumin supplements for osteoarthritis, it's advisable to consult with a healthcare professional to discuss potential benefits, proper dosage, and any potential interactions with other medications. [16]

Withania Somnifera: - Withania somnifera, commonly known as ashwagandha, may have anti-inflammatory and antioxidant properties. These properties could potentially be beneficial in

managing symptoms of osteoarthritis by reducing inflammation and oxidative stress. its anti-inflammatory and antioxidant properties may have potential benefits in managing osteoarthritis symptoms, Ashwagandha is also known for its adaptogenic properties, which means it may help the body better respond to stress.[17] Chronic pain conditions, including osteoarthritis, can be influenced by stress levels, and managing stress might indirectly contribute to symptom relief. Some studies have explored the potential of ashwagandha in promoting joint health. [18] This includes its impact on cartilage, the tissue that cushions joints and can be affected in osteoarthritis. Ashwagandha may help regulate the body's inflammatory response.

Ashwagandha has been studied for its potential role in supporting joint health. Some research suggests that it may help reduce symptoms such as pain and stiffness in conditions like osteoarthritis

Zingiber: - Zingiber, commonly known as ginger, has anti-inflammatory properties that may provide relief for osteoarthritis symptoms. Some studies suggest it may help reduce pain and improve joint function. Osteoarthritis indicates that its anti-inflammatory and antioxidant properties may contribute to pain relief and improved joint function. [19]Ginger contains bioactive compounds like gingerol, which has been studied for its potential anti-inflammatory effects. Ginger supplementation has been associated with improvements in joint function. This includes increased range of motion and enhanced physical function in individuals with osteoarthritis. [20] Ginger may also contribute to pain relief by inhibiting certain pathways associated with pain perception. Several small-scale clinical trials and animal studies have explored the use of ginger in osteoarthritis



Some other herbs for treatment of (OA) and (RA):-

A some other herbs have been studied in preclinical studies using cells and animal models but have not been tested in human clinical trials. However, the mechanisms elucidated in these preclinical studies provide insight into the therapeutic potential of these natural drugs in RA and OA. Angelica, Cinnamon, Glycyrrhiza. Species have been widely used in traditional Chinese medicine and are known for their anti-inflammatory and analgesic properties.

Benefits of herbal medication for arthritis:-

Herbal medications for arthritis may offer various benefits, including potential anti-inflammatory properties, pain relief, and fewer side effects compared to some pharmaceutical options. Herbal remedies often come from plants and have been used in traditional medicine for centuries, Herbal treatments may have fewer side effects than pharmaceutical drugs, but individual reactions can vary. Herbal remedies may have fewer reported side effects compared to certain pharmaceutical drugs. For some people, this can be a deciding factor, especially if they have concerns about the potential adverse effects of prescription medications. Responses to herbal remedies can vary widely among individuals. Factors such as age, overall health, and the specific type of arthritis may influence the effectiveness of herbal

treatments. Responses to herbal remedies can vary widely among individuals. Factors such as age, overall health, and the specific type of arthritis may influence the effectiveness of herbal treatments.

A) Anti-inflammatory Properties: Many herbs possess anti-inflammatory properties that might help reduce inflammation, a common factor in both osteoarthritis and rheumatoid arthritis [21]

B) Pain Relief: Certain herbs are known for their analgesic properties, potentially alleviating pain associated with arthritis [22].

C) Fewer Side Effects: Herbal remedies might have fewer adverse effects compared to traditional pharmaceuticals, although they can still interact with other medications and cause side effects in some cases.

D) Improved Joint Function: Some herbal treatments could aid in improving joint mobility and function, thereby enhancing the quality of life for individuals with arthritis. [23]

CONCLUSION

Pharmacological treatments recommended for the treatment of OA and RA are associated with variable efficacy and safety, particularly in the treatment of chronic pain and inflammation. Some herbal remedies can be used as adjunctive therapy to work with or reduce the need for pharmacological agents. Treatment with herbal medicines may also offer a safer alternative with

the same or better efficacy. Herbal medication for both osteoarthritis and rheumatoid arthritis reveals a promising field with potential benefits for symptom management. The anti-inflammatory and analgesic properties found in certain herbs, such as turmeric, boswellia, and ginger, suggest a role in alleviating joint pain and inflammation. These activities can promote improvements in OA and RA joint pain, inflammation, swelling, structure and function with minimal side effects. For future research, more research is needed to determine the clinical safety and effectiveness of herbal remedies for arthritis and other chronic pain. Further research into plant-derived chemical compounds and isolates may also help provide more targeted treatment options. Finally, it is necessary to develop natural product formulations with ideal bioavailability and kinetics to enable.

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