

HERBAL REMEDIES USED FOR TREATMENTS OF RHEUMATOID ARTHRITIS

Janvi Verma^{*1}, Anisha¹, Sanjana Kumari¹, Deepika Kumari¹, Shalu Yadav¹, Anupriya Gautam¹, Pratima Pandey¹ and Rupa Kumari¹

R.C.C. College of Pharmacy Ganeshpur Basti UP.



*Corresponding Author: Janvi Verma

R.C.C. College of Pharmacy Ganeshpur Basti UP.

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ABSTRACT

Natural plant extracts and compounds (NPECs), which originate from herbs or plants, have been used in the clinical treatment of rheumatoid arthritis (RA) for many years. Over the years, many scientists have carried out a series of studies on the treatment of RA by NPEC. They found a high quantity of active NPECs with broad application prospects. In view of various complex functions of these NPECs, exploring their potential as medicines for RA treatment will be beneficial for RA patients. Thus, to help advance the development of high-quality NPECs for RA, we herein aimed to review the research progress of NPECs in the treatment of RA in recent years. Our findings showed that, from the pharmacological perspective, natural plant extracts or mixed herbal compounds effectively regulate the immune system to alleviate RA by inhibiting pro-inflammatory cytokines. Further, individualized medication can be applied according to each patient's physical condition. However, the pathogenesis of RA and its immune mechanism has not been fully understood and requires further studies.

KEYWORDS: Natural Plant, Rheumatoid Arthritis, Therapy.

INTRODUCTION

Rheumatoid Arthritis (RA) is a common autoimmune disease that is associated with progressive disability, systemic complications, early death, and socioeconomic costs.^[1] According to Data Monitor, RA affects approximately 1.8 million people in the U.S. and has no known cause. RA is not associated with factors such as aging. RA occurs when the body's immune system malfunctions, attacking healthy tissue and causing inflammation, which leads to pain and swelling in the joints, and may eventually cause permanent joint damage and painful disability. The primary symptoms of RA include progressive immobility and pain, especially in the morning, with long-term sufferers experiencing continual joint destruction for the remainder of their lives. There is no known cure for RA. Once the disease is diagnosed, treatment is prescribed to alleviate symptoms and/or to slow or stop disease progression. RA is associated with a heavy burden on society in terms of disability and health and economic costs. Because RA tends to be progressive in nature, involving a worsening of symptoms over time, and often begins for many people during the early or middle years of life, the disease often has a long-term impact on functioning (over 30 years for many individuals), which translates to a considerable social and economic cost. For many patients, the chronic fatigue and pain associated with RA interferes significantly with the ability to function normally.^[1] Consequently, RA may take away a person's

ability to work. One study estimated that as many as one-third of people with RA are forced to stop working within 10 years of being diagnosed. This makes loss of productivity an important part of the overall burden of the disease. Additionally, the many health complications associated with RA make the disease expensive from a cost standpoint and can have a pronounced negative impact on quality of life.^[2] Fortunately, improvements in diagnosis and treatment of RA have meant that the impact of the disease on functioning and quality of life can be lessened. It is important to keep in mind that many of the studies that measure the impact of RA were conducted before some of the important recent treatment advances and don't reflect the potential for the latest treatments to improve functioning. Many RA patients, who only decades ago would have lost the ability to work and care for themselves, with newer treatments are able to continue to work and lead full lives.^[3]

CAUSES

Arthritis involves the breakdown of cartilage. Cartilage normally protects a joint, allowing it to move smoothly.^[4] The process produces an inflammatory response of the synovial (sinusitis) secondary to hyperplasia of synovial cells, excess synovial fluid, and the development of panes in the synovial. The pathology of the disease process often leads to the destruction of articular cartilage and alkalosis of the joints. Rheumatoid arthritis can also produce diffuse inflammation in the

lungs, pericardium, pleura, and sclera, and also nodular lesions, most common in subcutaneous tissue. Although the cause of rheumatoid arthritis is unknown, autoimmunity plays a pivotal role in both its chronicity and progression, and RA is considered a systemic autoimmune disease.^[5-6]

EPIDEMIOLOGY

About 1% of the world's population is afflicted by rheumatoid arthritis, women three times more often than men.^[7] Arthritis represents one of the most prevalent chronic health problems and is a leading cause of disability. Arthritis affected 43 million U.S. adults in 2002 and by the year 2020, this number is expected to reach 60 million.^[8] It is up to three times more common in smokers than non-smokers, particularly in men, heavy smokers, and those who are rheumatoid factor positive. A study in 2010 found that those who drank modest amounts of alcohol regularly were four times less likely to get rheumatoid arthritis than those who never drank.^[9]

Symptoms and diagnosis

The pervasive nature of arthritis symptoms and their effect on physical, social and occupational activities can be discouraging, resulting in psychological sequelae such as anxiety, depression and helplessness.^[10] RA can be hard to detect because it may begin with subtle symptoms, such as achy joints or a little stiffness. The stiffness seen in active RA. Other signs and symptoms that can occur in RA include: Joint pain and swelling; reduced ability to move the joint; redness of the skin around a joint; warmth around a joint; loss of energy and appetite; low fevers; dry eyes and mouth from a related health problem; Sjogren's syndrome. Firm lumps, called rheumatoid nodules, which grow beneath the skin in places such as the elbow and hands. Methods to detect RA include clinical assessment, imaging and laboratory tests. Clinical assessment and opinion is considered the 'gold standard'.^[11] Diagnosis of RA depends on the symptoms and some blood tests can also help to confirm RA. Telltale signs include: Anemia (a low red blood cell count); rheumatoid factor (an antibody, or blood protein, found in about 80% of patients with RA in time, but in as few as 30% at the start of arthritis); antibodies to cyclic citrullinated peptides (pieces of proteins), or anti-CCP for short (found in 60– 70% of patients with RA); Elevated erythrocyte sedimentation rate (a blood test that, in most patients with RA, confirms the amount of inflammation in the joints). X-rays can help in detecting RA, but may not show anything abnormal in early arthritis. Even so, these first X-rays may be useful later to show if the disease is progressing. Often, MRI and ultrasound scanning are done to help judge the severity of RA. There is no single test that confirms an RA diagnosis for most patients with this disease.^[12]

Herbal Drugs used for treatments of Rheumatism Arthritis

1-Ginger



Fig. 01: (Ginger).

Used in Asian medicine and cuisine for centuries, ginger has anti-inflammatory properties. They include the ability to suppress inflammatory molecules called leukotrienes and to synthesize prostaglandins, which are hormone-like substances that cause pain and inflammation, according to research published in the journal *Arthritis*. In one study, 70 patients with rheumatoid arthritis took either 1,500 milligrams (mg) of ginger powder or a placebo for 12 weeks. Results of this research suggested that ginger may improve RA symptoms by affecting the expression of certain genes. Try stir-frying a chicken or veggie dish with chopped fresh ginger, eating fresh pickled ginger, or adding grated ginger to soups or smoothies. Galina Roofener, a licensed acupuncturist and Chinese herbalist, agrees that ginger can be a beneficial part of your plan to alleviate joint pain caused by arthritis and recommends working with a trained herbalist. Find one near you with the directory of the National Certification Commission for Acupuncture and Oriental Medicine (NCCAOM).^[13]

2-Thyme



Fig. 02: (Thyme).

A fragrant herb that has high antioxidant capabilities, thyme has a rich history as a food flavoring. And it's been found to have anti-inflammatory and antimicrobial properties that could be therapeutic for rheumatoid arthritis, according to research. In fact, thyme was found

to be the most commonly used herbal medicine among people with RA, according to a study.^[14]

A sprig of fresh thyme can be a flavorful addition to meat, poultry, bean, tomato, or egg dishes, as well as soups and stews. It has long been used in Italian, French, Mediterranean, and Middle Eastern cuisines, and “thyme’s pungency is one of its greatest benefits, but can be a drawback if it is used incorrectly,” according to SPICEography. So don’t go overboard with it.

3-Turmeric



Fig. 03: (Turmeric).

A golden spice that’s long been used to lend color and flavor to foods, turmeric also has been used in ayurvedic and Chinese medicine for a variety of conditions, including arthritis and musculoskeletal disorders. A review published in 2021 of 51 studies found curcumin (the active ingredient that gives turmeric its yellow color) to have anti-inflammatory effects on RA. Want to try turmeric? Add it to soups, stews, and curry dishes. Helpful hint: Combining turmeric with black pepper helps your body absorb the yellow spice even better, according to research. If you’re taking it as a supplement, the Arthritis Foundation recommends 500 mg of curcumin extract capsules twice a day. For optimal absorption, it is best taken with food. Remember to consult with your doctor before starting on turmeric. Roofener cautions that because turmeric has blood-thinning properties, it should be avoided in large doses if you take a blood-thinning medicine.^[15]

4-Green Tea



Fig. 04: Green Tea.

Consumed in Asia for millennia, green tea contains polyphenols, which are antioxidant-rich substances that can help reduce inflammation, protect joints, and trigger changes in immune responses that would ease the

severity of arthritis. Research on arthritis-induced rats compared the effects of green tea and black tea on arthritis and found that green tea extract had superior anti-inflammatory effects. So treat yourself to a daily tea break with a cup of hot green tea, iced green tea, or even a cup of matcha, using a powder made from ground green tea leaves. You’ll do your health, and perhaps your joints, a world of good.

5-Cinnamon



Fig. 05: Cinnamon.

A delicious spice, cinnamon has powerful antioxidant properties that help inhibit cell damage from free radicals. But that’s only part of what’s behind cinnamon’s health halo: It also helps reduce blood sugar and cholesterol levels, and it appears to protect cognitive function as people get older. What’s more, one study found that when women with rheumatoid arthritis consumed four capsules of 500 mg of cinnamon powder daily for eight weeks, they had a significant decrease in blood levels of C-reactive protein (a marker of inflammation), as well as reduced disease activity, including tender and swollen joints. Another study also found that supplementation with cinnamon lessened C-reactive protein levels and other biomarkers for inflammation and oxidative stress, which occur in people with RA. The authors of this research concluded that cinnamon supplementation may enhance the reduction of inflammation and oxidative stress levels in humans. Dried cinnamon can be added to oatmeal, smoothies, soups, stews, or even oranges for a delicious and healthy dessert. Cinnamon sticks can be added to teas or ciders for an extra flavor infusion. Just don’t overdo it, Roofener cautions. “Although it’s fine on your cinnamon bun, if it’s overdosed, it might not be safe for pregnant women.” Large doses of the spice also could interfere with blood clotting and blood thinner medication.^[16]

6-Garlic



Fig. 06: Garlic.

Sliced, minced, or chopped, fresh garlic can liven up any dish and may help ease rheumatoid arthritis pain. Like leeks and onions, garlic contains diallyl disulfide, an anti-inflammatory compound that decreases the effects of pro-inflammatory cytokines. Research has found that the administration of garlic has anti-arthritis activity — preventing cartilage destruction and reducing inflammation — in arthritis-induced rats. In one study, 70 women were randomly assigned to take either 500 mg of garlic powder tablets twice a day or a placebo for eight weeks. At the end of the study period, those who took the garlic reported significantly lower pain intensity and fatigue scores. They also had lower levels of C-reactive protein and tumor necrosis factor (TNF), which are proteins involved in inflammation.^[17]

7-Black Pepper



Fig. 07: Black Pepper.

It's a staple on most dining tables and widely used to add a dash of flavor to everyday dishes. But did you know that black pepper, including piperine, its active compound, has bona fide health benefits? It's true. Research has found that black pepper has antioxidant, antimicrobial, anti-inflammatory, and gastro-protective effects. One study suggested that the administration of piperic acid has anti-inflammatory effects, inhibiting swelling and the production of cytokines in animals. Other research has found that piperine administration relieved inflammation, pain, and other symptoms of arthritis in animals.^[18]

8-Cayenne



Fig. 08: (Cayenne).

Cayenne and other chili peppers contain capsaicinoids, which are natural compounds that have anti-inflammatory properties, according to the Arthritis Foundation. Many ointments and creams containing capsaicin (the main ingredient in cayenne) are available to relieve arthritis pain. One study found that capsaicin cream was just as effective as nonsteroidal anti-inflammatory drugs (NSAIDs) at reducing pain for people with osteoarthritis. You can add cayenne pepper to sauces, marinades, and rubs. Or simply sprinkle dried cayenne onto your favorite dish. But beware: This spice can be hot and may irritate the digestive tract. If you can't take the heat, cayenne also comes in a capsule form. Cayenne may interact with different medicines, so be sure to talk to your doctor before trying this supplement.^[19]

9-Willow Bark



Fig. 09: Willow Bark.

Willow bark has significant anti-inflammatory properties and reduces various markers of inflammation, according to research. In one study, researchers gave willow bark extract to 436 people with rheumatic pain due to osteoarthritis and back pain and saw a significant reduction in pain after three weeks. Roofener stresses that you should consult with your doctor before taking willow bark, as it may increase the action of aspirin or an NSAID.^[20]

10-Indian Frankincense



Fig. 10: Indian Frankincense.

Derived from the bark of the *Boswellia* tree, found in India and North Africa, Indian frankincense has strong anti-inflammatory properties as well as analgesic effects. It also may help prevent cartilage loss. However, the Arthritis Foundation notes that there's some concern that *Boswellia* may stimulate the immune system, and advises caution for those with RA.

11-Green-Lipped Mussel Extract



Fig. No. 11: Green-Lipped Mussel Extract.

Technically, this substance is a seafood extract (not an herb) that is touted for inflammation-fighting properties. Nutritional supplements containing extracts from the New Zealand green-lipped mussel (*Perna canaliculus*) are rich in omega-3 fatty acids, which have anti-inflammatory effects. So it stands to reason that these supplements could be helpful for RA; however, little research has been done in people, and so far results from studies in animals and humans have been mixed, according to the Arthritis Foundation.

12-Evening Primrose Oil



Fig. No-12: Evening Primrose Oil.

The oil comes from the seeds of the evening primrose plant, which is native to certain parts of North and South America. It's favored for being a rich source of gamma linoleic acid (GLA), a type of omega-6 fatty acid. Research has suggested that evening primrose oil could reduce symptoms of RA, but the results were inconsistent. If you are interested in trying evening primrose supplements, the Arthritis Foundation suggests a dosage of 2.5 grams (g) per day, but notes it could take up to six months to see benefits.

13- Ashwagandha



Fig. 13: Ashwagandha.

Ashwagandha, also called "Indian ginseng," is an herbal treatment that's been used for thousands of years to ease pain, reduce stress, and treat other conditions. Research has found that taking ashwagandha powder followed by treatment with Sidh Makardhwaj (another type of Indian medicine with herbal and mineral ingredients) eases pain and joint swelling in people with rheumatoid arthritis. The dosage will depend on the type you take "There have been many human clinical trials that have found anti-inflammatory and pain-relieving effects associated with ashwagandha," says Lise Alschuler, ND, clinical professor of medicine at the University of Arizona Andrew Weil Center for Integrative Medicine in Tucson. "Many of these trials suggest that at least two to three months of usage is necessary before the benefits will be noted." Alschuler says ashwagandha is generally safe for people with RA. However, patients should consult with their doctors if they are taking diabetes or thyroid medicines, as the supplement could cause an additive effect. Additionally, pregnant women should talk to their providers before taking ashwagandha.^[21]

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