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ROLE OF UNANI MEDICINES TO TREATMENT OF RHEUMATOID ARTHRITIS: AN REVIEW

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ABSTRACT

Rheumatoid arthritis(RA) is an auto immune disease which causes inflammation in the joints. It is a condition in which our immune system targets the tissues around our joints, causing the production of chemicals and enzymes that destroy the cartilage and bones. Inflammation, discomfort, swelling, and stiffness of the joints are all signs of RA, which can also lead to joint deformity and disability in severe cases. According to Unani system of medicine, arthritis is known as Waja-ul-Mafaasil which means pain in joints. The Unani system identifies and attributes diseases like arthritis to a weak immunity and poor digestive system. There are number of poly herbal formulations which are used in the treatment of rheumatoid arthritis.The aim of treatment for patient with Waja-ul-Mafaasilis to reduce morbidity and disability. Even current modern medications used to cure symptoms only provide brief relief and have severe side effects, therefore researchers rely on natural therapies to treat a variety of ailments that are effective, safe. This review focuses on anti-arthritic effect of herbal plants in Unani system which are used in poly herbal formulation for the treatment of Rheumatoid arthritis.

Keywords: Rheumatoid arthritis, Inflammations, Joint pains, Medicinal plants , Unani system of Waja-ul-Mafaasil.

INTRODUCTION

Rheumatoid arthritis is an autoimmune disease that affects multiple systems with unknown cause. Synovial joints are the most commonly affected, with persistent inflammation, loss of both cartilaginous and bony components of the joint, and results in discomfort and disability(1).The lining of a typical joint is quite thin and has few blood vessels, whereas the lining of rheumatoid arthritis joints is very thick and filled with white blood cells. Chemical molecules produced by white blood cells, such as IL-1 and TNF- α , cause discomfort, swelling, and joint injury. New cytokines such as IL-17, IL-182, and 3 have been discovered recently.

These cytokines cause surrounding articular cartilage synovial fibroblasts and chondrocytes to release enzymes that breakdown proteoglycans and collagen, resulting in tissue degradation(2,3). According to the concepts, the evolution of autoimmunity in rheumatoid arthritis is complicated. Through epigenetic alterations, the inflammatory process normally begins in a susceptible person who has been exposed to trigger of autoimmunity (4). The global prevalence of RA is still underestimated. In rheumatoid arthritis, the female to male ratio is 2:1 to 3:1(5,1).The goal of treatment in RA is to relieve pain, reduce inflammation, and enhance general functionality. Rest and activity in moderation, the use of splints and

braces, and the use of assistive devices may all be beneficial(6,7,8). To treat symptoms, pain medications, steroids, and NSAIDs are commonly utilized. DMARDs, such as hydroxyl chloroquine and methotrexate, may be used to try to slow the progression of the disease. Biological DMARDs may be used when other treatments fail to control the illness (9). However, they may have a higher rate of negative effects (10).

In unani ,Waja-ul-Mafaasil (Rheumatoid Arthritis), according to Ibn Sna (Avicenna), the finest Unani physician of his time, is a clinical illness characterized by pain and stiffness in a single joint or several joints caused by the build-up of RutbatGharba (foreign humour) in the joints(11).The primary causal elements of Waja-ul-Mafaasil (Rheumatoid Arthritis) were characterized by Rz (Rhazes) and Ibn Sna (Avicenna) as joint weakness, impairment of temperament of whole body or single organ, such as joints (12). Furthermore, it is described that Waja-ul-Mafaasil (rheumatoid arthritis) as Qillat-i-Harrat Gharziyya (inadequate intrinsic heat), and it has been proven that the temperature of the joints is lower than the temperature of other areas of the body. According to Unani physicians, at low temperatures, the absorption of morbid humours is delayed, which is a common cause of wastages

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in the joints (13,14) . Many synthetic medications are used as conventional treatment for rheumatoid arthritis, but they have side effects that can interfere with the therapeutic treatment, thus these side effects enhance the likelihood of using herbal plants for rheumatoid arthritis treatment. The purpose of this review is to look at medicinal plants that are used to treat rheumatoid arthritis in Unani system of medicine.

PLANT MATERIAL: Anti-arthritis medicines

Figure 1: Terminalia chebula



Botanical name : Terminalia chebula
Common name: Black or Chebulic myrobala
Unani name :Halelazard

In unanisystem fruits and barks are used for medicinal purpose(15,16,17) .It is widely used for number of diseases such as rheumatoid arthritis, piles, gastrointestinal diseases, cancer, paralysis, cardiovascular illness, leprosy, gout, epilepsy, and ulcer . Unani physicians employ the fruits of Halaila both topically and internally for medicinal purposes (15).

Figure 2: Bambusa arundinacea



Botanical name :Bambusaarundinacea
Common name: Thorny bamboo
Unani name : Tabasheer

Bambusa is known as Tabashir Tawashir in Unani system of medicine (18) .Bambusaarundinacea preparations have been used to treat a variety of inflammatory disorders and ulcers. The activity can be increased by combining the herb with modern medicines and can be used for long-term therapy of chronic inflammatory disorders such rheumatoid arthritis and peptic ulcer(19) .

Figure 3: Colchicum autumnale



Botanical name :*Colchicum autumnale*
Common name :*Autumn crocus or meadow saffron*
Unani name :*Suranjantalkh*

Colchicum corm is mostly used for therapeutic purposes .SuranjanShirin (*Colchicum autumnale*) has been shown to be beneficial in treating rheumatoid arthritis, osteoarthritis, and gouty arthritis. Colchicine is extracted and taken orally as a pill to treat arthritis and familial Mediterranean fever, while the corm and seeds are used to treat enlarged prostate, dropsy, gout, rheumatism, and arthritis(20) .

Figure 4: Lawsoniainermis



Botanical name :*Lawsoniainermis*
Common name :*The mignonette tree*
Unani name :*Henna*

Lawsoniainermis leaves are utilised in traditional medicine for its anti-inflammatory and analgesic properties (21). Medicinally, the plant's bark, leaves, and seeds are used (22) in the treatment of Arthritis.

Figure 5: Pyrethrum indicum



Botanical name :*Anacyclus pyrethrum*
Common name :*Chrysanthemum*
Unani name :*Aqarqarha*

Aqarqarha (*Anacyclus pyrethrum*) is a botanically derived Unani medication that is most typically found in the Mediterranean region (26,27) . The root and leaf of Aqarqarha are effectively used in traditional medicine (28). Aqarqarha roots are most widely employed in Unani System of Medicine in single or compound form (29) but leaves are also used in other therapeutic systems..Aqarqarha is therapeutically used for waja-ul-mafasil (joint pain).

Figure 6.Colchicum luteum



Botanical name :*Colchicum luteum*
 Common name :Autumn crocus or meadow saffron
 Unani name:*Suranjantalkh*

Suranjantalkh is a little perennial herb with a height of 2-10 inches (32) . The corms are light brown in colour, opaque, and bitter in taste. Colchamine, 3-desmethylamine, 3-dismethyl-lunicolchamine,3-desmethylcolchamine,Lumicolchicine,N-deacetyl-N formylolchicine, Luteidine,New alkaloid L-5 and L6, Lutiene, Collutine N-oxide are some of the chemical constituents (33,34)Javedetal discovered Colchicum luteum to be effective in the treatment of rheumatoid arthritis in clinically . As it reduces or eliminates rheumatoid arthritis 2 symptoms and signs, the drug appears to have anti-inflammatory and analgesic characteristics in RA (35).

Figure 7: *Cassia fistula linn*



Botanical name :*Cassia fistula*
 Common name :*Golden shower*
 Unani name :*Amaltas*

In unani system of medicine *Cassia fistula*linn is known as *amaltasis* used as purgative and tonic due to presence of the wax aloin(37).It is also contains antiulcer(38), antipyretic ,analgesic , Anti-inflammatory and hypoglycemic activities (39) . rubbing of leaves externally on affected area is effective for ulcers, rheumatism, and facial paralysis (40)

Figure 8: *Withaniasomnifera*



Botanical name : *Withaniasomnifera*
 Common name: *Ashwagandha, Ginseng, and Winter cherry*
 Unani name :*Asgand*

It is grown commercially in the Indian states of Madhya Pradesh, Uttar Pradesh, Punjab, Gujarat, and Rajasthan (41) .*Withaninesomniferar*root powder reduces arthritic symptoms in mice by acting as an anti-inflammatory and antioxidant agent (42) . The root and leaf are commonly used in ashwagandha(43) . Ashwagandha is

an analgesic that calms the nervous system and raises serotonin levels, which helps to relieve arthritic pain(44,45).It is consider as herb of choice for arthritic sufferers (46) .

Figure 9: *Zingiber officinale*



Botanical name :*Zingiberofficinale*
 Common name :*Ginger*
 Unani name :*Zanjabeel*

The most often used ingredients is ginger (47) . Ginger has capacity to reduce inflammation, swelling, and discomfort is one of the many health benefits (48) . It's been believed that fresh ginger paste can help with inflammation, osteoarthritis, and rheumatism (49,50) .Researchers believe that 6-Gingerol, 6- and 10-dehydrogingerdione, 6- and 10- gingerdione are capacity to decrease prostaglandin and leukotriene production (51) .Those compounds are claimed to be more powerful than indomethacin(52) .

Figure 10: *Piper nigrum*



Botanical name :*Piper nigrum*
 Common name : *black pepper*
 Unani name :*FilfilSiyah*

Piper nigrum is also known as the "King of Spices"(53) . The *black pepper* is grown in the tropical countries like Brazil, Indonesia, and India . One of the most well-known and widely used spices in the world.It includes the main pungent alkaloid Piperine , which has a variety of pharmacological effects. It is frequently employed in various traditional medical systems(54,55) .In a rat arthritis model, piperine had anti-inflammatory, analgesic, and anti-arthritic properties(56).

Figure 11: *Phyllantus emblica*



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Botanical name :*Phyllanthusemblica*
 Common name :*Indian gooseberry, amla*
 Unani name:*Amala /aonwala / amlaj*

The plant is only found in India, now it also found in Pakistan, Uzbekistan, Sri Lanka, Southeast Asia, China, and Malaysia(57).The extract prevented migration of human polymorphonuclear cells and displayed anti-inflammatory properties, according to research(58) .The king of all medicinal crops is the Indian gooseberry(59).These data imply that *Embllica officinalis* fruit extracts has antipyretic and analgesic properties by inducing programmed cell death in human primary osteoclasts(60) . The extracts of *Embllica officinalis*fruits could be useful in the treatment of rheumatoid arthritis and osteoporosis(61) . Emblica fruits also shown to be a chondroprotective agent in the treatment of osteoarthritis(62) .

Figure 12: Barringtonia



Botanical name:*Barringtoniaracemosa*
 Common name:*Powerpuff mangrove*
 Unani name :*Hingan ,hanguul*
Barringtoniaracemosa ,

It's found in the Indian Ocean, India, Sri Lanka, Malaysia, Thailand, China, and numerous Polynesian islands, where it grows in coastal swamp woods and on the edges of estuaries(63). 3,3'-dimethoxy ellagic acid, dihydromyricetin, gallic acid, bartogenic acid, and stigmasterol are some of the chemical constituents found in this plant. It possesses anti-oxidant and anti-inflammatory properties(64.65).It is used to treat rheumatoid arthritis. *Barringtoniaracemosaprotects* rats from arthritic lesions, both primary and secondary, as well as haematological problems methe scientific name for this plants.

Figure 13.Tinospora gulancha



Botenical name:*Tinosporiagulancha*
 Common name:*Gurjo, heart- leaved moonseed, guduchi*
 Unani name:Giloe

*Tinosporacordifolia*linn is found in tropical India and China. Tinosporine, tinosporaside, cordifolide, cordifol, heptacosanol, Tinosporidincolumbin, and b-sitosterol are the most important constituents(66) .It's used to boost the immune system and the body's ability to fight infection. Rheumatoid arthritis is also treated with this drug(67) .

Figure 14: Ammaniabacciferalinn



Botanical name :*Ammaniabaccifera*
 Common name:*Monarachredstem or blistering ammannia*
 Unani name :*Blistering ammania*

Ammaniabacciferalinnis the scientific name for this species. Acrid weed, monarch red stem, teeth cup are some of the common names for this plant. *Ammaniabacciferalinn* is a glabrous, erect branched herb that grows as a weed in forests and marshy areas throughout India. Sterols, glycosides, triterpenoids, and saponin are all found in it(68) .Hypothermic, hypertensive, anti-urolithiasis, antibacterial, seminal weakness, and fever CNS depressive properties are all present in this plant. *Ammaniabacciferalinn*. Aerial parts have anti-inflammatory and anti-arthritic properties(69) .

Figure 15:Premnaserratifolilinn



Botanical name :*Permnaserratifoli*
 Common name :*Headache tree*
 Unani name :*Arni*

Premaserratifolilinn is a big shrub or small tree (70). It is found on the shores and islands of tropical and subtropical Asia, Africa, Australia, and the Pacific Ocean. In India, it grows in wild planes all across the country. Alkaloids, flavonoids, tannins, glycosides, steroids, and phenolic chemicals are all found (71). It is used to treat nerve pain, arthritis, ingestion, fever, and malignancies.

Figure 16: Root of hemidusmus indicus linn



Botanical name:*Hemidusmusindicus*
 Common name:*Anantamul, pseudosarsa*
 Unani name :*Ushba*

Hemidusmusindicus(72) is a plant species native to southern Asia. Coumarin, essential oil, starch, tannic acid,

and triterpenoidsaponin are all present(73). It's used to treat rheumatoid arthritis, nephritis, chronic skin illness, chronic ulcers, and blood purification(74). Oral therapy with ethanolic extract of *hemidusmusindicus* for 8 days .

Figure 17: Operculinaturpethum



Botanical name :*Operculina turpethum*
Common name :*Indian jalap, turpeth*
Unani name :*Turbud, nishoth*

This plant can be found in tropical regions of India, America, Pakistan, Sri Lanka, China, the Philippines, and Africa at random(75). This action was investigated using ethanolic root extract in various concentrations with BSA(Bovine serum albumin). The inhibition of acetyl salicylic acid was 70 percent, but the inhibition of ethanolic extract was 67.22 percent(76). They're commonly utilised as an anti-rheumatic medication (77). In India and Kharasan, it is usually found along riverbanks(78). Anticancer, antioxidant(79) ,anti-inflammatory, anti-coagulant(80), and immunomodulation activities(81) effects are among the biochemical and pharmacological activities of operculinaturpethum chemical constituents.Fresh juices from these leaves can help cause lacrimation in ophthalmia(82) .

Figure 18: Rubia cardifolia



Botanical name :*Rubiocardifolia*
Common name:*Indian madder*
Unani name :*Majeeth*

Rubiocardifolia is a remarkable herb that has been utilised in the unani system of medicine for many years(83,84).The plant's anti-arthritis capabilities are well demonstrated in this study. Anthraquinones such as RUBIADIN, MUNJISTIN, and PURPURIN have been found in this plant. (85). Indian Modder is his moniker(86). The roots are used to treat rheumatism(87). *R.cardifolia*ethanolic extract has significant anti-arthritis properties(88). Rubiadin, rubicardone a, and rubiasins are the most common phytoconstituents found in

R.cardifolia(89). Rubiadin was also thought to be a carcinogen that targets the kidney, liver, and large intestine (90).

Figure 19: Alpinia galanga



Botanical name:*Alpinia galanga*
Common name:*Siamese ginger, galangal*
Unani name:*Khulanjan*

Lingiberaceae has been studied for its anti-arthritis properties(91). Unani is a rhizomatous perennial herb used in traditional medicine(92). Rheumatoid arthritis pain relief(93). Galangal can also help with fever, irregular menstruation, and male fertility(94). Galangal acetate, kaempferol, and 1,8 cinedeare the main active chemicals discovered in the galangal rhizome(95).

Figure 20: Foeniculum vulgare



Botanical name :*Foeniculumvulgare*
Common name :*Common fennel*
Unani name :*Badiyan*

It's a well-known fragrant seed(96). Fennel seeds are native to India's states of Haryana, Punjab, Maharashtra, and Uttar Pradesh(97). It's used to treat dribbling urine, intrahepatic blockage(98), galactopoietics(99,100), weakness of vision(46), rheumatoid arthritis(101), and stomatitis, among other things. In people with a hot disposition, it can cause headaches(102,103). Muscle pain, headache, and dizziness are all symptoms of dipsetic(104). 6gms will be the dosage(105,106). Antibacterial, antifungal, antioxidant, antithrombotic, anti-inflammatory, oestrogenic, hypoglycaemic, and hepatoprotective effects have been demonstrated in scientific investigations(107).

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