Arthritis (Waja ul Mafasil) in the light of Unani system of Medicine-A Review

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ABSTRACT

Arthritis is one of the commonest joint disorder affecting millions of people worldwide with an estimated 15% of Americans had some form of arthritis in 1995 and by the year 2020, an estimated 59.4 million will be affected. In India it affects 15% (180 million) people. Ancient Unani scholars have elaborately described inflammation and pain of joints under the caption of Waja ul Mafasil and managed with multidimensional approach, in contrast with the present day management of disease mainly with non-steroidal anti-inflammatory drugs (NSAIDs) which will be having large number of adverse effects. This review article highlight the salient features describing arthritis with reference to Waja ul Mafasil for empathizing disease condition as enunciated by Unani scholars to provide a better alternative in terms of cost effective managements and side effects.

Arthritis is a painful or inflammatory condition affecting joints and it's muscles, and ligaments and may involve any joint that are; hips, knee, hands, wrists, back with accumulation of mawade fuzooni (vitiated matter) in the joints as the causative factor liable for pain and inflammation. Waja -ul-Mafaṣil the term is used frequently for joint pain. It encompasses all types of joint pain such as Niqris (gout), Waja- ul-Warik (low backache), Irqunnisa (sciatica), Waja-ur-Raqba (Knee Osteoarthritis), Waja-ul-Mafasil has been classified by the eminent Unani scholars are various types on basis of etiopathology as well as site of involvement of the joint. Risk factors for this disease are advance age, obesity, repeated use of joint from a long period. Dalak (massage) to relieve sign and symptoms. Unani treatment modalities are still giving challenge to modern system of medicine because of safe, effective, inexpensive, easily availability and fewer side effects.

KEY WORDS: Osteoartheritis, Waja -ul-Mafaṣil, Ta'deel-e-Mizaj, Tanqiya-e-Madda/ Istafragat-e-Madda.

I. Introduction

Waja ul Mafasil is an Arabic term, where Waja literally means 'pain' and Mafasil means 'joints'. It is a painful or inflammatory condition affecting joints, its surrounding muscle and ligaments1 and may involve any joint viz; knee, hips, wrists, hands etc. with accumulation of mawade fuzooni (vitiated matter) in the joints as the causative factor liable for pain and inflammation. As per Unani literature in human body all bones are inter-related and inter-connected to form joints; articular surfaces of some joints are cartilaginous and possess some intervening spaces, which helps them to perform different kinds of movements. These spaces are filled with rutubat (fluid) i.e., rutubate tajawif (synovial / interstitial fluid), which act as a lubricant and keep the joint

surface consistently moist, so as to prevent from friction.While the articular surfaces of some joints are non-cartilaginous where consideration of this function is not necessary, a joint is created between two bones without any appendages or intervening space.

Fig. 1 Rheumatoid Arthritis

Fig. 2 Rheumatoid Arthritis

Abu Sahal Masihi categorized all joints of the human body broadly into two types, Mafsal: Movable joints Lahaam: Immovable joints Ibn Sina, categorized the joints based on the articulation into three types:

A. Chaneeda mafsal salas (Diarthrosis): Freely movable joints
B. Mafsal usregair mossiq (Amphiarthosis): Slightly movable
C. Usre gair mumdissiq (Synarthrosis): Immovable

Waja -ul-Mafaṣil (Osteoarthritis) is a chronic degenerative disorder of multifactorial etiology characterized by loss of articular cartilage, hypertrophy of bone at the margins, subchondral sclerosis and range of biochemical and morphological alterations of the synovial membrane and joint capsule. It is a painful or inflammatory condition affecting joints and its muscles, and ligaments and may involve any joint that are; hips, knee, hands, wrists, back with accumulation of mawade fuzooni (vitiated matter) in the joints as the causative factor liable for pain and inflammation. Waja -ul-Mafaṣil (Osteoarthritis) the term is used frequently for joint pain. It encompasses all types of joint pain such as Niqris (gout), Waja- ul-Warik (low backache), Irqunnisa (sciatica), Waja-ur-Raqba (Knee Osteoarthritis),waja ul warik(low Backache). Joints are composed of bones which are inter-related and inter-connected with the help of cartilage, tendon; articular surfaces of some joints possess some intervening spaces which helps them to perform different kinds of movements. These spaces are filled with rutubat (fluid) i.e. rutubate tajawif (synovial fluid), which act as a lubricant and Keep the joint surface consistently moist, so as to prevent from friction.

II. History of Arthritis

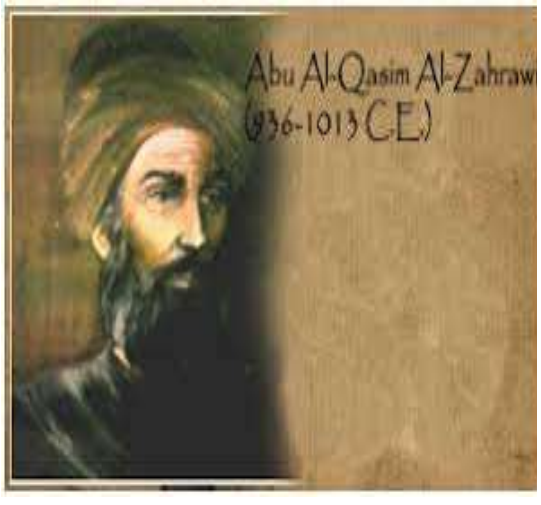
Waja-ul-Mafasil is a compound Arabic word, comprised of two words, Waja and Mafasil. Waja (plural Auja) is an infinitive word which literally means pain or ache. Mafasil (singular mafsal) is an adverb of place which literally means joint. So the literal meaning of Waja-ul-Mafasil is joint pain. The history of Waja-ul-Mafasil is as old as the history of human being. It is said that even dinosaurs were afflicted by this disorder, whose history dates back 100 million years. Great historical personalities like Alexander the great 356-323 BC were also

having this disorder. This disorder is well described in the old Egyptian, Unani and Roman classical medical literature. Waja-ul-Mafasil is one of the diseases that have been elaborated thoroughly in the Unani classical literature.

Abu Ali al Husyan ibn Addillah ibn al Hasan Ibn Ali bin sina (980-1037

Muhammad ibn Zakariya al-Razi (854 -932)

It is well described in the treatises of Hippocrates (460 BC), Dioscorides (70 AD), Rufus (117 AD), Galen (129-217 AD), Feel Gharyoos (465 AD), Yuhana Bin Mas'waih (812 AD), Sabit Bin Qarrah (836 AD), Hunain Bin Ishaq (838 AD) , Rabban Tabari (898 AD), Majoosi (930 AD), Razi (930 AD), Nooh-ul-Qamar (990 AD), Masihi (1010 AD), Ibn Sena (1037 AD), Jurjani (1137 AD),



Abu al-Qasim Khalaf ibn al-Abbas al-Zahrawi (936 – 1013)

Ibn Nafis (Ala-al-Din Ali ibn Abi-Hazm al-Qarshi) (1213-1228)

Ibn Zuhr (1162 AD), Ibn Rushd (1188 AD), Mooosa Bin Maimoon (1214 AD), Samarqandi (1232 AD), Nafeen Bin Ewaz Kirmani (1500 AD), etc. Hippocrates presented the first compendium on the disease known as Kitab-ul-Mafasil, while as Dioscorides (70 AD) described the disease in detail in his book Kita-ul-Hashaish. Rufus (117 AD) prepared the next compendium on the disease having title Kitab Auja-ul-Mafasil, while as Galen (129-217 AD) discussed the disorder in his book Kitab-ul-Elal-wal-Amraz. Feel Gharyoos (465 AD) has written treatises with the name of Risala Fee Irqun Nisa and Risala Niqras. Yuhana Bin Mas'waih (812 AD) in

his books Kitab-ul-Kamal wa Tama and Al Mushajjar ul Kabir, and Sabit Bin Qarrah (836 AD) in his books Auja-ul-Mafasil and Kitabul Dhakheera Fee Ilm-ut-Tib described the causation and line of treatment in detail.

Fig. 1 Ali Ibn Rabban *al Tabari*

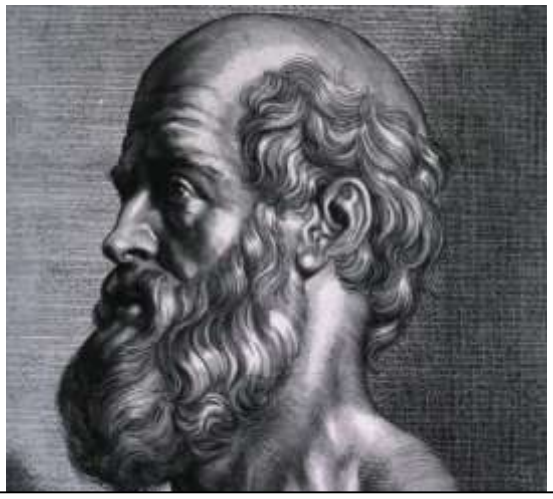


Fig. 2 Hippocrates father of medicine

According to Zakariya Razi, "Waja-ul-Mafasil is one of those disorders which occur in the form of recurrent or paroxysmal attacks." Razi defines it as, "Waja-ul-Mafasil is a wide term that encompasses pain of joints, Niqras (Gout) and Irq-un-Nisa. It may have specific names accordingly to site. e.g., when the pain starts from hip and spreads down the length of leg then it is called as Irq-un-Nisa, and when it is in foot, it is named as Niqras." He further adds that this disease is caused by the accumul accumulation of excessive fluid (Ratubat). According to Alama Najeeb-ud-Din Samarqandi, "Waja-ul-Mafasil is that pain and inflammation which is developed in the joints of the organs." Alama Nafees elaborates this statement that this condition occurs in the surrounding structures of joints like synovial membrane, cartilage, ligaments, tendons and muscles. Ismail Jurjani states, "When the morbid material is accumulated in the joints of organs and results in the inflammation and pain, it is called Waja-ul-Mafasil." According to Dawood Antaki, most of the physicians call it Marz-ul-Malook. Depending upon the joints involved Waja-ul-Mafasil is named accordingly as Niqras (Gout), Waja-ul-Warik (Ischial pain), Irq-un-Nisa (Sciatica), Waja-ur-Rukbah (Knee pain). Sometimes it also involves the jaws, ear ossicles and vertebrae and become complicated to be diagnosed.

III. Classification of Arthritis (Waja-ul-Mafasil)

Arthritis has been classified by the eminent Unani scholars and physicians on various criteria, which are given under following:-

According to matter present

A. Sue Mizaj sada(due to external cause like cold, lack of exercise etc)
B. Sue Mizaj maddi(vitiated matter).

According to humours (khilt): Consideration of the types of Khilt (Humors) causing Waja-ul- Mafasil (Arthritis) leads to its division into four types

A. Waja-ul-Mafasil Safravi (bilious)
B. Waja-ul-Mafasil Saudavi (Melancholic).
C. Waja-ul-Mafasil Balghami (Phlegmatic)
D. Waja-ul-Mafasil Damvi (sanguineous)

According to number of cause

Waja-ul-Mafasil Mufrad: This type of Waja-ul-Mafasil is caused by the abnormal change in the one of the four humors and has been categorized into; Waja-ul-Mafasil Balghami, Waja-ul-Mafasil Saudavi Waja-ul-Mafasil Safravi and,Waja-ul-Mafasil Damvi, Waja-ul-Mafasil Murakkab: When the change is in more than one humour and at least two humours.

Modern Classification

[1] Primary osteoarthritis (idiopathic)

A. Localised

– Hands – nodal osteoarthritis more than three joints Involved

– Hip – eccentric, concentric, diffuse

– Knee – medial tibiofemoral, lateral tibiofemoral, pattelofemoral

_ Spine – apophyseal, intervertebral, spondylosis.

B. Generalised

1. Small (peripheral) joints

2. Large (central) joints

3. Mixed and spine

C. Erosive osteoarthritis

2) Secondary

I) Congenital and developmental disorders, bone dysplasias.

ii) Post-surgery / injury – Meniscectomy.

iii) Endocrine – Diabetes mellitus, Acromegaly, Hypothyroidism, Hyperthyroidism, Cushing syndrome.

IV) Metabolic – Hemachromatosis, Ochronosis, Marfan syndrome, Ehler-Danlos syndrome, Paget disease, Gout, Pseudogout, Wilson's disease, Hurler disease, Gaucher disease.

IV. Clinical Features of Arthritis.

A. Risk factor

1. **Age:** is the most potent risk factor for OA. Aging increases joint weakness through several mechanisms. Cartilages become less responsive to these stimuli. Muscles and tendons that bridge the joint become weaker with age. Older women are at high risk of OA in all joints, a risk that emerges as women reaches 5-6th decades because of replacement of hormones after menopause.
2. **Obesity:** This is certain that there is three or more times burden on hip and knee joint than the actual body weight because of gravity. Any increase in weight may be multiplied by this factor to reveal the excess force across the knee in overweight persons during walking. Obesity is an potent risk factor for the development of knee OA and, for hip OA.
3. **Repeated Use of Joint:** There are two categories of recurring use of joinst, occupational use and free time time physical activities. Workers performing recurring tasks as part of their occupations for many years are at high risk of developing OA in the joints they use repeatedly. Certain types of exercise may paradoxically increase the risk of disease while exercise is a major element of the treatment of OA.

Clinically, the condition is characterized by joint pain, tenderness, limitation of movement, crepitus, occasional effusion, and variable degrees of local inflammation.There is type of pain wich can be occurred in

joints of limbs and this may restrict the daily activities. Sometimes it is zarbani in nature and sometime it is dull, deep and heavy.

B. Pain

Pain is the first and major symptom of osteoarthritis. The pain in weight-bearing joints is usually worsened by standing and walking is and relieved by rest. Although it is characteristically irregular, pain can become regular.

C. Stiffness

Osteoarthritis usually occurs in the morning or after periods of inactivity. The stiffness typically resolves within minutes and is relieved by motion of the joint.

D. Loss of movement

As osteoarthritis progresses, joint movement becomes limited. This results in loss function, which, alongside pain, is a major reason that patients visit their family doctor. Loss of movement can lead to difficulties with certain daily activities, such as stair climbing, walking.

E. Other symptoms

Joint enlargement due to joint effusion, bony swelling or both. Crepitus, defined as a sensation of crackling or crunching, is also commonly felt on passive or active movement of an affected joint.[9]

V. Etiopahogenesis

According to Unani system of medicine the pain which occur in joint's of limbs called waja ul mafasil and produced by specific type of mawad (matter) which should be evacuated but due to zoafe quwwate dafea of mafasil (joint) it could not evacuate properly and cause rubbing in mechanic of that particular joint. Further progressively this matter become cold due to decrease function of joint because it is a concept where quwwa is weak then function is weak and when the function is not proper the the hararat(warmth) will start to convert into barudat (cold) and ultimately it will affect the all madda of joint cavity either it would be synovial fluid or membrane or cartilage or bony prominance.Normally after the evacuation of the old abnormal matter the new one is made and lubricate the joint properly and one more place. According to Jurjani wajaul mafasil is type of pain which occurs in joints of limbs, is two types one is Asli or Fai'la(structural cause) and another one Arizi(secondary) is includes following.

1. Asbabe Asli or Fai'la (Primary cause)

A. Generally Tabiyat of the joints suck the fluids whenever the level decreases. but when due to unnecessary motorized use of the joint occur a abnormal heat produced which burn the joint fluid this process called tahallul and there a dryness produced. Because this time Tabiyat is unable to suck the fluid according to request (badale ma ya tahallul) could not occure completely).

B. 2.The joint quwwate dafea get weak resulting the ghair tabai fuzlat get not evacuated which cause an another thing that all structure in a joint either capsule or tendon or cartilage or bony prominence are cold and dry then these cannot assimilate the abnormal fluid. So this fluid become cold and this create a type of pain.

C. 3.The joint space are very large space so these get very easly affected by abnormal fluids(ghair tabai mawad) and this could not evacuated easily by tabia't of joints.

2. Asbabe Arzi (secondary)

Lack of exercise, zoafe meda (weakness of stomach), ghizae be aitadali(improper diet in respect to time, quantity, and quality), use of alcohol, excessive coitus and exercise after meal, Ehtebaas ghair tabai for example cessation of menstruation, hemorrhoids, sweating etc.

Osteoarthritis is considered an organ's disease that involves the whole joint structure. A gradual loss of articular cartilage in synovial joints is combined with subchondral bone sclerosis, osteophytes at the joint margins and mild, chronic nonspecific synovial inflammation.

VI. Diagnosis of Arthritis (Tashkhees)

The diagnosis of Waja-ul-Mafasil can be made through following points

1. If pain is mild, absence of weight, shifting in nature, with severe distension, indicates due to Riyah
2. Presence pain in or over the joint.
3. Onset of pain either sudden or gradual, if onset is gradual, without heaviness, inflammation or swelling and no change in skin colour of affected joint, then it is considered to be due to Sue mizaj sada.
4. Presence of marked swelling or inflammation, color changes, sudden onset of disease, or pain with heaviness is to be considered due to khilti madda.

In modern analysis of Arthritis it is chiefly based on history and clinical examinations. X-ray is the still mainstay instead of recent advance techniques like CT, MRI etc. . X-rays may be used as confirmative tool for diagnosis.

Typical changes seen on x- rays include:

1. Sub Chondral sclerosis (increased bone formation around the joint)
2. Subchondral cyst formation
3. Joint space narrowing
4. . Osteophytes.

VII. Treatment of Arthritis.

If cause is maddae kham/balghami then Nuzj is necessary and for it ma'aul usu'l to give for orally. Patient should be advised to do vomiting. After that mushil drugs should be prescribed for example Habbe ayarij, Habbe muntun, Habbe sakbenuj, Tiriyaq e arba has a specific effect in this disease which occur due to Balgham kham. Massage of Rogane Qust, roghane Suddab, Roghane Farfyun, Roghane Sosan is very effective. Before application of oil the skin of back should be rub with a rough cloth and oil is heated slightly then applied. If cause is Sue Mizaj sada then normal Mizaj should be restored and orally Mashridotos, Sanjarniya, Tiriyaqe arba is very effective.if pain occur due to involvement of kidneys then the drugs as like muqawwi ghurda like jawarish zar'ooni, Sharbate bazoori should be used.If the cause is exercise then give advice to take rest and easy digestable diet and patient to send for Hammam and give massage with Roghane shibbat and Roghane Babbona.If cause is Hyperemia then give fas'd of basleeq and safin(phlebotomy of Basilliq and long saphanous) and for massage Roghane Ghul and diet easily detestable.

A. Nuskha Munjiz wa mushil contains:

Bekhe Badiyan (Foeniculum vulgare)7gm, Bekhe kibr (Capparis Spinosa) 7gm, Bekhe kirafs (Apium Graviolanse) 7gm, Badranjboya (Mellisa officinalis)7gm, Sana Makki (Cassia Aungustifolia) Aftimoon (Cuscuta reflexa) 7gm, Turbud (Ipomea turpthum), Suranjan (Cholchicum luteum) Maviz munaqqa (Vitis Vinefera) 9 number, Badiyan (Foeniculum vulgure) 5gm, Aslussus (glycyrrhiza glabera) 7gm, Injeer zarda (Ficus carica) 2 number

B. **Ilaj bit tadbeer (Regimenal Therapy)**

Fasd (Venesection/ Phlebotomy)

Fasd is one of the classical methods of treatment of Waja-ul-Mafasil in Unani system of medicine for cleansing, evacuation and diversion of surplus and morbid humours from the body.

Dalk (Massage)

It is a type of Riyazat (Manipulation method) resolve and liquefies vitiated matter, produces slight heat and Strengthen ligaments and muscles.

Fig. 3 Massage for Arthritis

Fig. 4 Cupping for Arthritis

Hijama

Hijama (Cupping) is one of the oldest and popular therapeutic regimens in Unani system of medicine indicated in different forms/ types of Waja ul Mafasil such as gout, sciatica, knee OA.

VIII. Importanof Herbal Drugs In treatment of Arthritis

A. Strobilanthes Kunthianus.

The plants S. kunthianus and S. cuspidate are belongs to the family Acanthaceae. Brahma Srinivasa Rao and his team investigated the in vitro anti-inflammatory and antiosteoarthritic activities of these plants extracts and compared with the marketed herbal formulation Shallaki which contains B. serrata extract. The results were found to be positive. In vitro anti-

Fig. 5 Tea Plant

Fig. 6 Jackfruit (Artocarpus)

inflammatory and antiosteoarthritic effects of ethanolic extracts of S. kunthianus and S. cuspidate were studied using "human RBC membrane stabilization method" and "rabbit cartilage explants culture method," respectively. Shallaki (50 µg/ml), diclofenac (50 µg/ml), and celecoxib (50 µg/ml) were used as reference drugs for comparison. The results revealed that both the plants have anti-inflammatory and antiosteoarthritic activity. Moreover, the extracts showed equipotent activity to diclofenac and higher activity than Shallaki.

B. Tea Plant (Camellia Sinensis)

It belongs to the family Theaceae C. sinensis commonly called tea and is largely used since ancient times and this plant of scientific interest for its numerous therapeutic properties. It is an evergreen shrub or small tree, native to mainland China, South and Southeast Asia, now cultivated across the world in tropical and subtropical regions. The active constituents of C. sinensis are polyphenols (catechins and flavonols). Other constituents are caffeine and essential oils. The reduced collagen-induced arthritis incidence and severity was reflected in a marked inhibition of the inflammatory mediators COX-2, IFNγ, and TNFα in arthritic joints of green tea-fed mice. Total immunoglobulin's G and Type II collagen-specific IgG levels were found to be lower in serum and arthritic joints of green tea-fed mice

C. Achyranthes Aspera

A. aspera belongs to the family Amaranthaceae, it is an annual stiff erect herb and found commonly as a weed throughout India. A. aspera is commonly called in Tamil as Nayuruvi and in Hindi as Circita. The whole plant is traditionally used as diuretic, expectorant, and anthelmintic. It is a useful remedy for asthma, bronchitis, cardiac disorders, anemia, leprosy, skin diseases, and also for inflammations. The plant juice and ash are used for treating bleeding piles. An alkaline powder of the plant is used in preparing kshar sutra of Ayurvedic medicine, which is recommended for treating fistula-in-ano. The ethanolic extract of A. aspera was investigated for its anti-inflammatory activity using protein inhibition assay method. The seven concentrations of the extract and diclofenac sodium were used in this study as standard drug. The extract at the dose of 800 µg and 1000 µg/ml showed potent action on comparison with the standard diclofenac sodium. The results of the present study empirically indicated that A. aspera was effective in the treatment of RA and that can support the common belief prevailing international medicines worldwide.

D. Girardinia Diversifolia

G. diversifolia, commonly known as the Himalayan nettle or Nilgiri nettle, is found abundantly in open forest land and riversides.. Himalayan nettle is possibly best known as a source of strong, lightweight, and sustainable natural fibers. However, this herb's benefits encompass the entire plant from roots to crown and everything in between! Nettle has traditionally been used as a natural diuretic and laxative. It can help to soothe nausea and eliminate internal parasites. Nettle has a positive effect on the pancreas, helping to prevent diabetes by balancing blood sugar, and it assists in regulating blood iron levels. It can be used to ease a headache and to relieve joint pain such as that caused by arthritis. It is known to improve urinary tract health and prevent gout flare-ups by cleansing uric acid from the joints, as well as for promoting respiratory health, bolstering the immune system by stimulating the lymph and endocrine systems.

E. Anemone Vulgaris

It belongs to Ranunculaceae A. vulgaris also known as "windflower" growing along the water channels and grasslands, plants of 20–100 cm in height, silky pubescent herbs with basal leaves with rounded blade of 7–15 cm, deeply 3-lobed, shallowly toothed, flower 1.3–3 cm, white. The whole plant is dried and made powder which is taken orally to cure asthma. However, scientific evidence of using this plant for arthritis was not obtained.

Fig. 7 Dalchini or Cinnamon

Fig. 8 Orange climbers (Toddalia)

F. Gaultheria Fragrantissima

The genus Gaultheria (Ericaceae) comprises about 200 species, and G. fragrantissima is a bushy evergreen shrub of higher elevation, growing in shaded woodland and margin of forests. The plant grows in sandy (light), loamy (light), and acidic soils. This aromatic plant has long been valued for its wintergreen oil. The bruised leaves have powerful camphor-like smell. The essential oil rich in methyl salicylate is extracted by distillation of leaves. The oil has high demand in pharmaceutical and perfumery industries. The plant has been used as an antiseptic, carminative, flavoring agent and condiment and also in rheumatic and arthritis treatments. Methyl

salicylate is a natural precursor of pharmaceutical aspirin. It is also an active ingredient to treat various kinds of external pains.

G. Toddalia asiatica

T. asiatica (Rutaceae), also known as Wild Orange tree, is a green leafy climber growing in the evergreen forests and is vastly distributed in the tropical regions of Africa, India, and Madagascar. It contains coumarins, quinoline, and benzophenanthridine alkaloids. The alkaloids of the crude extract have been shown to have anti-inflammatory effects in rats using the carrageenan test and to inhibit the auricle swelling caused by xylol and joint swelling caused by agar in rats. It has also been shown to have antimalarial and antileukemic properties. The central and peripheral antinociceptive effects of T. asiatica have been demonstrated using mice. Roots as well the leaves are used in parts of East Africa for the management of neuropathic and inflammatory pain. Roots have been shown to be potent in antinociception than leaves. Most of the folkloric uses of the genus T. asiatica evolve around pain, inflammation, and microbial infections. T. asiatica(L.) Lam. has been utilized traditionally for medicinal purposes such as the treatment of rheumatism. Currently, the extract is considered to be a good source of pharmacological agents for the treatment of bone-related diseases, but the active compounds have yet to be identified.

H. Artocarpus Heterophyllus (Jackfruit)

A. heterophyllus belonging to family Moraceae is reported to possess antibacterial, anti-inflammatory, antidiabetic, antioxidant, and immunomodulatory properties. A. heterophyllus is an important source of compounds such as morin, dihydromorin, cynomacurin, artocarpin, isoartocarpin, cyloartocarpin, artocarpesin, oxydihydroartocarpesin, artocarpetin, norartocarpetin, cycloartinone, betulinic acid, artocarpanone, and heterophylol which are useful in fever, boils, wounds, skin diseases, convulsions, diuretic, constipation, ophthalmic disorders, and snake bite. The anti-inflammatory effects of the isolated compounds were evaluated by determining their inhibitory effects on the production of pro-inflammatory mediators in lipopolysaccharide (LPS)-activated RAW 264.7 murine macrophage cells. These three compounds exhibited potent anti-inflammatory activity. The results indicated that artocarpesin suppressed the LPS-induced production of nitric oxide (NO) and prostaglandin E 2 (PGE 2) through the downregulation of inducible NO synthase (iNOS) and cyclooxygenase 2 (COX-2) protein expressions. Thus, artocarpesin provides a potential therapeutic approach for inflammation-associated disorders.

I. Zingiber Officinale (Ginger)

Ginger is obtained from rhizomes of Z. officinale. The plant belongs to Zingiberaceae family. Since ancient times, it has been widely used as a medicinal herb and spice. As it contains various phytochemical ingredients as beneficial therapeutic agent, Z. officinale has been contributing pivotal roles against a broad range of diseases like asthma, diabetes, stroke, constipation, and others. It is reported that 100,000 tons of gingers are annually produced, and 80% of this is produced in China. The activity of Z. officinale as an anti-inflammatory agent was investigated by Thomson and his group in rats. Experimental rats were treated with aqueous extract of Z. officinale either orally or intraperitoneally daily for 4 weeks. Although at low-dose ginger did not reduce PGE 2 concentrations, at high doses it significantly lowered PGE 2 levels. Therefore, ginger could reduce

inflammation associated with RA. Recently, in vitro anti-inflammatory effect of ginger was carried out by Ribel-Madsen et al. where they isolated synovial cells from synovial membrane or synovial fluid. Cells were stimulated by TNF-α. Ginger-treated cells showed similar inhibitory effect to betamethasone by inhibiting production of cytokines IL-1 and IL-6 indicating anti-inflammatory effect.

J. Curcuma Longa (Turmaric)

It belongs to a family Zingiberaceae commonly known as curcumin and possesses various biological activities such as anti-inflammatory, hepatoprotective, antibacterial, antidiabetic,

Fig. 9 Ginger (Zingiber)

Fig. 10 Turmeric or curcumin

antidepressant, analgesic, and anticarcinogenic. The anti-inflammatory action of curcumin is attributed to inhibition of lipoxygenase LOX, suppression of activation of NF-β, tumor necrosis factor-alpha (TNF-α), molecular adhesion, and inhibition of upregulation of matrix metalloproteinase (MMP-9) mRNA. It also promotes suppression of expression of TNF- α-induced MMP-13 in chondrocytes. Various in vivo and in vitro studies have been carried out to explore the antiarthritic potential of curcumin. In vivo evaluation of curcuminoid was found to reduce both acute and chronic inflammation by 75% and 68%, respectively. Oral administration of curcumin provides symptomatic relief in exercise-induced muscle damage due to its anti-inflammatory property.

K. Withania Somnifera (Ashwagadha)

It is commonly known as Ashwagandha and is reported to have analgesic, anti-inflammatory, antibacterial, immunomodulatory, anticancer, diuretic, antiulcer, antidiabetic, and antiarthritic properties. The in vivo antiarthritic potential of aqueous extract of W. somnifera roots was evaluated in rats and was found to reduce anticyclic citrullinated peptide antibody, collagen type II antibody (a-CII), and inflammatory marker such as C-reactive protein, lipid peroxidation, and glutathione-S-transferase activity with anolides also inhibit NF-κB and NF-κB-regulated gene expression. The clinical evaluation of W. somnifera extract at two different doses (250 mg and 125 mg) has been found to reduce inflammation significantly in dose-dependent manner and was devoid of any side effects.

L. Camellia Sinensis

It belongs to the family Theaceae C. sinensis commonly called tea and is largely used since ancient times and this plant of scientific interest for its numerous therapeutic properties. It is an evergreen shrub or small tree, native to mainland China, South and Southeast Asia, now cultivated across the world in tropical and subtropical regions. The active constituents of C. sinensis are polyphenols (catechins and flavonols). Other constituents are caffeine and essential oils. The most important catechin in green tea is (-) epigallocatechin that is a potent antioxidant. The reduced collagen-induced arthritis incidence and severity was reflected in a marked inhibition of the inflammatory mediators COX-2, IFNγ, and TNFα in arthritic joints of green tea-fed mice. Total immunoglobulin's G (IgG) and Type II collagen-specific IgG levels were found to be lower in serum and arthritic joints of green tea-fed mice. Nadia M El- Beih and his team evaluated and compared the elevated effects of two doses of green and black tea aqueous extracts on articular/extra-articular complication in rat adjuvant-induced arthritis. The results showed that green tea may be highly useful in the management of RA complications.

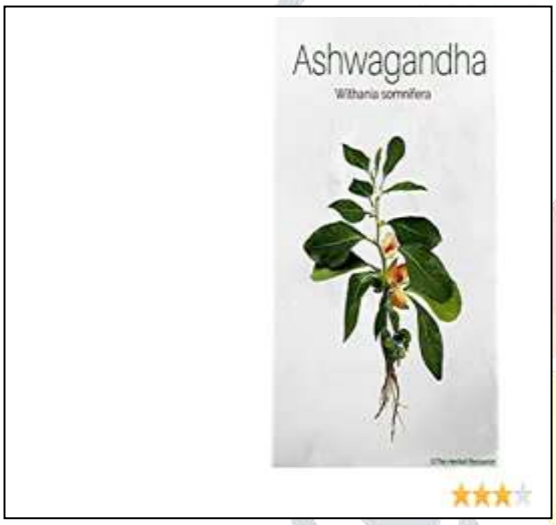


Fig. 11 Ashwagandha (Withania)

Fig. 12 Salai (Boswellia Serrata)

M. Boswellia Serrata

It belongs to the family Burseraceae, pentacyclic terpenes are found in plants in the forms of various derivatives such as acetyl-11-keto-BA and 11-keto- BA. Therapeutically, BA and its derivatives are used in various ailments such as ulcerative colitis, cancer, hepatitis, inflammation, pain, cough, bacterial infection, and OA. In preclinical evaluation, BA was reported to reduce cartilage loss, synovitis, and osteophyte formation and, hence, has beneficial role in OA and other joint disorders. Clinical investigation of B. serrate extract was found to provide statistically significant improvement in patients suffering OA and was well tolerated with minor gastric disturbance

N. Cinnamomum Zeylanicum (Dalchini)

It belongs to a family (Lauraceae), a polyphenol derivative has been explored in various pharmacological conditions such as atherosclerosis, diabetes, fungal infection, inflammation,

Alzheimer disease, and arthritis. Type-A procyanidine polyphenols are reported to have immunomodulatory and anti-inflammatory potential without analgesic activity in both in vitro and in vivo studies. In another study, C. zeylanicum extract was found to reduce inflammation and arthritis in rats by suppressing intracellular release of TNF-α in dose-dependent manner and, hence, is an effective remedy for treating RA.

XI. Compound Unani Formulations of Arthritis (Murakkabat)

Habb-e-Najah, Habb-e-Sheetraj, Habb-e- Mafasil, Habb-e-Kuchla, Iyarij Faeqra,.Habb-e-Suranjan, Jawarish Jalinoos, Jawarish Safarjali, Majoon Azraqi, Majoon Chobchini,Majoon Najah, Majoon Safarjali, Majoon Suranjan, Majoon Ushba, Qurs Mafasil, Tiryaq-e-Kabir, Tiryaq-e- Arba', Tiryaq-e-Farooque Habb-e-Asgandh, Habb-e-Azraqi, Habb-e-Muntan,

IX. Unani formulations used for local aplication

Roghan-e-Balsan, Roghan-e-Satawri, Roghan-e-Jundaebedastar, Roghan-e-Gul-e-Aakh,Roghan-e-Kuchla, Roghan-e-Mom, Roghan-e-Hanzal, Roghan-e-Baboona, Roghan-e-Zaitun, Roghan-e-Badam, Roghan-e-Auja, Roghan-e-Chobchini,Roghan-e-Dhatura,Roghan-e-Suranjan, Roghan-e-Surukh, Roghan-e-Mafasil Hakeem Ajmal Khan, Roghan-e-Qust, Roghan-e-Marzanjosh,
Roghan-e-Sosan

X. CONCLUSION

The thoughtful literary survey relating to Waja ul Mafasil as to its concept, detailed classification, Etiology and multidimensional approach in the management appears to the fact that this age old disease was accurately managed by Unani scholars successfully in spite of the limitations prevailed over at that time. The dazzling point of this approach is through drug less disciplined therapies viz; Irsale alaq ,Fasd , Hijama, Dalk which seems to be a boon for intervention of disease condition in terms of easy to perform, cost actual and at the same time devoid of adverse effects. On deep approaching, arthritis can be correlated with various types of Waja-ul-Mafasil on basis of predisposing factors, aggravating factors, clinical features described in classical Unani texts. The aim of the this paper is to put the old theory of Unani medicine associated with osteoarthritis which had been described a long time ago and the Unani treatment modalities are still giving challenge to modern system medicine because of safe, effective, inexpensive, easily available and less side effects.

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