

(REVIEW ARTICLE)



Traditional uses of Iraqi medicinal plants (part 2)

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International Journal of Biological and Pharmaceutical Sciences Archive, 2021, 02(01), 022–041

Publication history: Received on 01 June 2021; revised on 04 July 2021; accepted on 08 July 2021

Article DOI: <https://doi.org/10.53771/ijbpsa.2021.2.1.0057>

Abstract

As a result of accumulated experience from the past generations, today, all the world's cultures have an extensive knowledge of herbal medicine. In recent years, ethno medicinal studies has received much attention as this brings to light the numerous little known and unknown medicinal virtues especially of plant origin which needs evaluation on modern scientific lines such as phytochemical analysis, pharmacological screening and clinical trials. This review was designed to highlight the traditional uses of medicinal plants.

Keywords: Traditional Uses; Plants; Herbs; Antioxidant

1. Introduction

Plants are a valuable source of a wide range of secondary metabolites, which are used as pharmaceuticals, agrochemicals, flavours, fragrances, colours, biopesticides and food additives. Recent reviews revealed that the medicinal plants possessed central nervous [1], cardiovascular [2], antioxidant [3], reproductive [4-5], gastro-intestinal [6-7], respiratory [8], antidiabetic [9], antimicrobial [10-12], antiparasitic [13], anticancer [14], dermatological [15], anti-inflammatory, antipyretic and analgesic [16-17], immunological [18], hepato and reno-protective [19-20] and many other pharmacological effects. In our previous paper [21], we discussed the traditional uses of Iraqi medicinal plants. This review - which represented the second part-Web Science, Pub Med, Scopus and Science Direct, were searched for the traditional uses of plants grown in Iraq.

2. Traditional uses of medicinal plants

2.1. *Lagerstroemia indica*

The plant had a long history of folkloric medical uses included: blood pressure control, urinary dysfunctions, to control the cholesterol levels, as analgesic, in treatment of diarrhea, to facilitate bowel movement, and in the treatment of diabetes. Seeds were used as narcotic. Bark was used as stimulant and febrifuge. Leaves and flowers were used as purgative. The root was used as an astringent, detoxicant and used as diuretic and gargle [22-24].

2.2. *Lagerstroemia speciosa*

The roots were used as astringent, stimulant and febrifuge, it was also used for stomach problems. Tea of the leaves was used in the treatment of diabetes mellitus and for weight loss. The leaves, flowers and barks were used as purgative. Leaf decoction or infusion was used for bladder and kidney inflammation, dysuria and other urinary dysfunctions, for cholesterol deduction, hypertension and diabetes. Poultice of the leaves was used as remedy for malaria, headache and

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cracked healing by application over the lesions. Decoction of the bark was used for gastrointestinal tract disturbance, stomachache, haematuria and depression. The seeds were used as narcotic [25].

2.3. *Lallemantia iberica*

Lallemantia iberica seeds were traditionally used as reconstitute, stimulant, diuretic, expectorant, for the treatment of common cold, coughing, stomach and abdominal pain [26-27]. Its seed contained mucilage which used in the treatment of nervous, hepatic and renal diseases and as general tonic [28]. Oil was used for lighting, as a varnish, in paints and as a lubricant. The oil may also be used for oil-foods and as a tanning agent. It is considered as a linseed substitute in a number of applications including: wood preservative, ingredient of oil-based paints, furniture polishes, printing inks and soap making. It is also used in the manufacture of linoleum [29-31].

2.4. *Lallemantia royleana*

Seeds were used as cooling, diuretic, sedative; as a soothing agent during urinary troubles, fever, common cold, intestinal troubles. It was also used as cephalic astringent, cardiac tonic, carminative and for cough. A poultice of seeds was applied to abscesses, boils and inflammations. In Ivory Coast, Burkina Faso, Gabon and Tanganyika, different parts of the plant were used for the treatment of intercostals pain, rheumatic pain and fever. The leaf and root decoctions were used to treat pneumonia [32-33]. Muslim used its seeds in drinks as flavoring, cooling, soothing and sedative. Seeds also applied as one composition of herbal mixtures for anxiety and depression disorders. Seeds mucilage also applied as a liniment for skin complications. The seeds were used in Iranian traditional medicine as diuretic, tonic, aphrodisiac, and antitussive and for the treatment of various nervous, hepatic, and renal disorders [34-36].

2.5. *Lantana camara*

Traditionally, the plant was used as diaphoretic, carminative, antispasmodic, tonic, antiemetic, to treat respiratory infections and disorders (cough, cold, asthma, and bronchitis), in the treatment of tetanus, epilepsy, dysentery and gastropathy. Powdered leaves were used for cuts, wounds, ulcers, and swellings. An infusion of the leaves was used for bilious fever, eczema, and eruptions. The fruits were used in fistula, pustules, tumors, and rheumatism. The root was used in malarial, rheumatism, skin rashes, dermatitis, eczema, mycotic infections and respiratory tract infections including influenza and tuberculosis. A decoction of fresh roots was used as gargle for odontalgia [37-40].

2.6. *Lathyrus sativus*

The seeds oil was used medicinally as a powerful cathartic. It was also used in Bangladesh to cure scabies, eczema and allergy. Immature pods were cooked and eaten as a vegetable, or boiled, salted and consumed as a snack. Young vegetative parts were cooked as a green vegetable; they were also dried for off-season use as a vegetable in Asia. In India, the whole seeds were sometimes boiled, but were most often processed into dhal. The flour, made by grinding either the whole or split seeds, was sold as (besan). Grass pea was sometimes used to adulterate more expensive pulses, such as chickpea or pigeon pea. In Bangladesh (roti) made out of grass pea flour was a staple for landless laborers. In Ethiopia and Eritrea grass pea seeds were mainly consumed in the form of sauces (wot), shirowot (sauce made of flour) and kikwot (sauce made of hulled split seeds) and were eaten together with injera (a pancake-like unleavened bread). Boiled grass pea seeds (nifro) were also consumed in most areas, whereas kitta (an unleavened bread) made from grass pea seeds was consumed mainly during times of acute food shortage. Young grass pea plants were used as fodder for cattle or for grazing in many countries. As fodder, the plants can be eaten green or as hay [41-45].

2.7. *Lawsonia inermis*

Leaves of *Lawsonia inermis* provide an important cosmetic dye. Henna leaves were extensively used for centuries in the Middle East, the Far East and Northern Africa as dye for nails, hands, hair and textile. Henna was also used in treating skin problems, headache, jaundice, amebiasis and enlargement of the spleen [46-47].

2.8. *Lemna minor*

The whole plant was used as antipruritic, antiscorbutic, astringent, depurative, diuretic, febrifuge and soporific. It was also used in the treatment of colds, measles, oedema and difficulty in urination. In addition, it was used in the treatment of vitiligo, podagra, and upper respiratory tract inflammation. Duckweed formulations were used in the treatment of rheumatism, liver diseases, and thyroid diseases. As external application, duckweed formulations were used in the treatment of abscesses, chronic wounds, and furuncles [48-49]. It was used internally, in combination with other medicinal herbs, to treat inflammation of the upper respiratory tract, and as a anti-inflammatory and blood purifying remedy for chronic rheumatic ailments such as rheumatoid arthritis and osteoarthritis. In China, the herb was used

internally for body temperature regulation (reduce high fever) and swellings (edema). Externally it was applied as a remedy for various skin ailments, such as rash, eczema, measles, and insect bites [50-51].

2.9. *Leontice leontopetalum*

The tuber was used in the treatment of epilepsy and leprosy. It was also used as snakebite opium poisoning antidotes. A soap was obtained from the plant, it was used in removing stains from cloth (5, 7). The plant roots were used in the treatment of rheumatism, joint pain and inflammation in Iran [52]. It was recommended to prevent benign prostatic enlargement, preventing breast, lymphoblastic, uterine and prostate cancers and for irregular menstrual periods, prevent menstrual cycle and postmenstrual syndrome, migraine, and development of myoma [53]. Tuber of *Leontice leontopetalum* subsp. *leontopetalum* was used for haemorrhoids in Turkey, the tubers were pulled out of the ground and sliced, then swallowed as a pill twice a day [54].

2.10. *Lepidium sativum*

The seeds of *Lepidium sativum* were used as aperient, diuretic, tonic, demulcent, carminative, galatogogue, emmenagogue, to cure throat diseases, uterine tumour, nasal polyps and breast cancer. Seeds were supplemented in the diet of lactating women to increase the milk secretion during post-natal period. Seeds also applied as a poultice to pains, hurts, sprains, in the treatment of bacterial and fungal infections [55-58]. The seeds were also used for treatment of fracture healing in Saudi traditional medicine [59]. In Unani system of medicine, seeds and leaves were used as diuretics, aperient and aphrodisiac and were recommended in inflammation, bronchitis, rheumatism and muscular pain (12). In Turkish folk medicine *Lepidium sativum* was used as to enhance digestion, as carminative and appetizer [60]. The plant was eaten and seed oil was used in treating dysentery, diarrhea and migraine [61]. The mucilage in the outer seed was used as substitute for tragacanth and gum Arabic [62-63].

2.11. *Linaria cymbalaria* (Syn: *Cymbalaria muralis*)

The herb was eaten as a salad in southern Europe, being acrid and pungent like cress. It was used as antiscorbutic, diuretic and tonic. Externally, it was used as a poultice on fresh wounds to stop the bleeding and as vulnerary. In India, it was used for the treatment of diabetes. The plant was also used in the treatment of haemorrhoids, scurvy, as a poultice to heal wounds and the infusion of the flowers was used as a diuretic in the Canary Islands. The flowers can be made into a non-permanent yellow dye [64-67].

2.12. *Linum usitatissimum*

Flax was being used as a food source dating back to ancient Greeks and Egyptians. It was also used as a food in Asia and Africa. In addition, it was used to supplement the diets of both ruminants and non-ruminants. Flax fiber was used by the prehistoric Lake Dwellers of Switzerland for the production of linen > 5000 years BP. However, the art of weaving flax fiber to linen may have originated in Egypt because winding-clothes for the bodies of the Pharaohs of Egypt were composed of flax fiber. It was then introduced in India, before the use of cotton [68-69]. The plant was used in the treatment of fever. Seeds were used as a laxative, soothing, pain relieving, for inflammation of digestive and urinary tracts, and as antidiarrhoeic. Seeds also used in preparation of cataplasms for their emollient properties against boils and inflammations [70-71].

In Pakistan, linseed was used on all kinds of local inflammations, sores and ulcers. Mucilage of linseed has been applied to the affected areas to resolve or to suppurate hard swellings; to relieve pain and to subside the affected inflamed areas. It was also used as paste or ointment in pleurisy, pneumonia, inflammation in bronchioles, peritonitis as well as inflammatory swellings in rheumatism. In China, it was used for constipation, dryness and itching of the skin, withering and loss of hair [72].

2.13. *Lippia nodiflora* (Phyla nodiflora)

The aerial parts were used as anodyne, antibacterial, emmenagogue, parasiticide, refrigerant, febrifuge, cooling, in treatment of wounds, asthma, thirst and loss of consciousness [73-74]. The plant made into a poultice to be used as maturant for boils. The infusion of leaves and tender stalks was used in children for indigestion and to women after delivery. *Chutney* made from the plant leaves and fruits were eaten to relieve the irritation of internal piles [75]. In Ayurveda and Unani system of medicine, the plant was used as aphrodisiac, diuretic, and for the treatment of heart diseases, ulcers, bronchitis, fevers, cold, knee joint pain and in lithiasis [76-78].

2.14. *Lithospermum officinale*

In former times, *Lithospermum officinale* was used as a remedy in diseases of the urogenital tract and as a spasmolytic drug. *Lithospermum ruderales* was used as an antidiarrhoeal drug by Indians in North America; a few tribes in Nevada used cold water extracts of the root as an oral contraceptive. In India, leaves were used as sedative. Seeds were used as diuretic and lithotriptic. A decoction of roots and twigs was given in the form of syrup in eruptive diseases, such as smallpox and measles [79]. However, the aerial parts and the seeds of *Lithospermum officinale* were used internally as diuretic, anti-gout, antitoxic, antiovarian, febrifuge, as anti-inflammatory in the urinary tract and for the stimulation of the digestion. The seeds were externally used for the elimination of foreign objects from the eyes. *Lithospermum officinale* roots were also used for the colouring of fibers and to obtain colors for makeup [80]. The herbal tea made from the root and stem was used for the treatment of smallpox, measles and as antipruritic [81].

2.15. *Lolium temulentum*

The seeds of *Lolium temulentum* are very nutritious and used for making bread. However, it is not advisable to eat it because sometimes it can be infected with an endophytic fungus *Endoconidium temulentum*, which is the source of the toxic pyrrolizidine alkaloids. This fungal infection, causes hallucinations in small doses and can, in larger quantities, cause severe damage to the nervous system. Slovenian ethnical groups living in western Hungary reportedly mixed the seeds of *Lolium temulentum* with those of barley to enhance the narcotic effects of beer. This grass was used medicinally by the ancient Greeks and Romans. Darnel was employed in headache, rheumatic meningitis, and in sciatica [82-85].

2.16. *Luffa acutangula*

Immature fruits of less-bitter cultivars of *Luffa acutangula* were used as a vegetable. They were cooked or fried and used in soups and sauces. Occasionally, the stem tops with young leaves and flower buds were used as a leafy vegetable. In South-East Asia, ridged gourd was a popular vegetable because of the mildly bitter flavor, the slightly spongy texture and sweet juiciness. Young fruits of sweet cultivars were also eaten raw and small fruits were sometimes pickled. The seeds yield an edible oil that is, however, sometimes bitter and toxic. The best sponges come from mature green fruits, although dry fruits may be used. The fruits were soaked for several days and then peeled. Once cleaned, the sponges were bleached and then dried in the sun, and were used for cleaning, filtering, and bathing. It was used traditionally in insect bites by tribes of Western Maharashtra [86-88]. Decoction of leaves was used for amenorrhea. Poultice of leaves was used for hemorrhoids. Juice of fresh leaves was used for granular conjunctivitis in children, to prevent the lids from adhering at night from excessive secretion and used externally for sores and various animal bites. Pulp of fruit was used internally, like calocynth, to cause vomiting and purging. Powdered dried fruit made into snuff for use by those afflicted with jaundice. Seed oil was used in dermatitis. In Russia, roots were used as a purge, In Iran and Iraq infused seeds were used as purgative and emetic, In India, roots were used in dropsy and as laxative and leaf and fruit juice were used in jaundice, In Bangladesh, pounded leaves were used in hemorrhoids, splenitis, leprosy, and the juice of leaves was used for conjunctivitis in children, In West Africa, leaf extract of ridged gourd was applied to sores caused by Guinea worms, leaf sap was used as eyewash in conjunctivitis and the fruits and seeds were used in herbal preparations for treatment of venereal diseases. In Mauritius, seeds were eaten to expel intestinal worms, while leaf juice was applied externally in eczema [89].

2.17. *Luffa cylindrica*

Luffa cylindrica was used in wide application in packing medium, shoes mats, sound proof linings, bath sponges, utensil cleaning sponges, adsorbent for removal of heavy metal (such as nickel, lead, chromium, copper, etc) in waste water, and immobilization matrix for plant, algae, bacteria and yeast [90]. It was used traditionally for the treatment of asthma, intestinal worms, sinusitis, chronic bronchitis pain, carbuncles, abscesses, inflammation, heat rashes of children in summer, bowels or bladder hemorrhage, hemorrhoids, jaundice, menorrhagia, haematuria, leprosy, spleenopathy, as anthelmintic, carminative, emmenagogue, galactagogue and as antiseptic [91-94]. The fruit pulp of *Luffa cylindrica* was used to induce hemostasis, resolve phlegm and clear fever in traditional Korean medicine [95].

2.18. *Lycium barbarum*

The fruits were used for the production of juice, wine and tincture. In the traditional medicine, it was used to enhance immune system function, help eyesight, protect the liver, boost sperm production, and improve circulation [96-100]. It was used in traditional Chinese Medicine as mild tonic, to enrich liver, kidneys and moistening lung. It was indicated in dizziness, blurry vision, diminished visual acuity, nocturnal emission, night sweating, infertility, impotency, soreness and weakness of the lower back and knees, headache, prevention of premature aging, prematurely grey hair, abdominal pain, fatigue, to replenish vital essence, wasting and thirsting disorder (diabetes), blood deficiency (anemia), dry cough, cough with blood or blood streaks and to increase longevity [101-104].

2.19. *Lycopus europaeus*

Traditionally, this herb was used to cure coughs, respiratory disorders and as a natural remedy for sleeplessness. It was also used as a natural treatment for hyperthyroidism and for some symptoms of Grave's disease, such as palpitations. Furthermore, it was used as astringent and cosmetic in Turkey, for the treatment of fever in Iraq and Turkey, as refrigerant, for the treatment of wounds and hyperthyroidism in India. It was also used in vascular excitement; hemorrhage, in small amounts, resulting from determination of blood to the lungs, kidneys, or gastro-intestinal organs; albuminuria, with frequent pulse; cough, with copious expectoration of mucus or muco-pus, especially debilitating chronic cough; wakefulness and morbid vigilance, with inordinately active circulation; frequent pulse, with high temperature, and in tubercular deposits [105].

2.20. *Lythrum salicaria*

Lythrum salicaria was known as medicinal plant from the ancient Greek and Roman times. The aerial parts of *Lythrum salicaria* were used internally for the treatment of diarrhea, chronic intestinal catarrh, hemorrhoid, eczema, as a decoction or fluid extract. Externally, it was used in the treatment of varicose veins, bleeding of the gums, hemorrhoid, eczema and vaginitis. It was also used as a demulcent and astringent decoction for the treatment of coloproctitis, summer complaints of children diarrhoea; locally for chronic ophthalmic and as a wash or poultice for leucorrhoea, gleet (gonorrhoeal discharge), and chronic gonorrhoea [106-110].

2.21. *Malva neglecta*

Due to its high mucilage content, it was used as soothing demulcent herbs, especially for cases of inflammation, either for the urinary, digestive or respiratory systems. Pregnant women or new mothers used mallow leaves as a source of iron, zinc and vitamins. *Malva neglecta* was substituted for spinach in many dishes, including soups, salads, gnocchi and quiche. Leaves and flowers were used for the treatment of constipation, sore throat, omen sterility, wound, hemorrhoids, miscarriage swellings, rheumatic pain, stomachache, abdominal pain, abscess, renal diseases, cough, throat infection, common cold, bronchitis,

peptic ulcer and indigestion. Stems and roots were used as abortifacient [111-113]. *Malva neglecta* was used in the treatment of common cold and to relieve cough in different parts of Iran. It was also used as a valuable and useful medicine to relieve the bruise, inflammation and mosquito bite. It was consumed for the treatment of urinary tract or digestive system diseases as well [114]. The pulverized mallow seeds are used to treat bladder ulcers and coughs [115]. In Italy the plant was used as tea in inflammation and as a gargle in sore throat. It was also used to treat acne, broken bones, help in abdominal pain and to treat swelling, dermatitis, burns and throat infection [116-117].

Malva neglecta fruit was an edible traditional medicinal plant used in Anatolia to cure multiple medical conditions such as asthma, stomachache and diarrhea. It also used to promote maturation of abscesses, in wound healing, abdominal pains and cancer [118-119].

2.22. *Mangifera indica*

Most parts of the tree were used medicinally for abscesses, tumour, snake bite, datura poisoning, wounds, diarrhoea, indigestion, liver disorders, excessive urination, anemia, tetanus, bronchitis and asthma. Aqueous extract of mango bark was used in Cuba by patients suffering from elevated stress [120]. The immature fruit, when sliced and dried, was used in septicemia. The leaves were steeped to produce a tea with a cooling effects, the liquid was used as a bath to treat fever and cold. The bark was considered diuretic, astringent hemostatic and antirheumatic when used in hot local baths and hot dressings. It was used in a wash for blennorrhoea. The seeds were used to treat clods, coughs, diarrhea, bleeding piles. The raw kernels were considered to be anthelmintic and used in the treatment of diarrhea. The resin was a remedy for aphthae, syphilis, and dysentery. The resin was used in cutaneous disease, the juice of kernel was snuffed to stop nasal bleeding, a decoction of the leaves with a little honey was given in aphonia, the loss of voice. Mid ribs of the leaves calcined and used to remove warts on eyelids. Tender leaves, were dried and made into a powder, and used in diabetes. Smoke of the leaves was said to have a curative effect in some infections of throat diseases. Ashes of leaves were a popular remedy for burns and scalds. Dried flowers in decoction powder was used in diarrhea, chronic dysentery and gleans. Powder of flowers were used as fumigation against mosquitoes. Gum resin of the tree was applied in cracked feet. A fluid extract form bark or rind was used for haemorrhage from the lungs, the uterus or intestine [121].

The leaf decoction was used as stomachic, anti-diarrheic, for genito-urinary inflammations, bronchitis, asthmas and in external use, in baths or washes against scabies and syphilis [122]. In the Northern region of Nigeria, the decoction of the stem bark extract was traditionally used for the treatment of wound and anemia [123-124].

2.23. *Marrubium vulgare*

Marrubium vulgare was used for dyspeptic complaints and for loss of appetite. It also used as a cholagogue or cholagogue herb [125]. Many Native American tribes extensively used the plant in formulations containing the leaves, or the leaves and flowers, for treatment of cough, mixed with honey because it is extremely bitter. Native Americans also used the root topically for rheumatoid arthritis [126]. In Mexico, the decoction of *Marrubium vulgare* was used in the traditional medicine for treatment of diabetes [127]. The herb was applied for the treatment of joint pain, inflammation, sore eyes, cough, bronchitis, pulmonary infections, cold and night blindness. The plant was also used to help in expulsion of fetus, as purgative, diuretic, bitter tonic, carminative and appetizer [128-129]. *Marrubium vulgare* raw material was recommended as a drink to accelerating the digestion processes [130-131].

2.24. *Matricaria chamomilla*

The essential oils of flower heads of *Chamomilla recutita* characterized by flavoring and coloring properties and for these properties, it was widely used in industry for commercial products like soaps, detergents, perfumes, lotions, ointments, hair products, baked goods, confectioneries, beverages and herbal teas [132].

Matricaria recutita was one of the most popular herbal medicine. The flowers were used for centuries for their anti-inflammatory, analgesic, antimicrobial, antispasmodic and sedative properties. The infusion of chamomile was used traditionally to calm nerves and reduce anxiety, and to treat hysteria, nightmares, insomnia and other sleep problems. The infusion was also used for relieving gastrointestinal disorders, especially in babies and small children and for the treatment of flu and bronchitis [133-134].

In external use, the chamomile was applied in badly healed wounds, a bath for the abscesses, the female furuncles, hemorrhoids and genital diseases and for babies to soften the skin. It was also used in acne [135].

2.25. *Medicago sativa*

Medicago sativa sprouts were consumed as vegetable salad. Its leaves or seeds were also sold as bulk powdered herb, capsules, and tablets for nutritional supplement in health food stores [136]. It was used traditionally as Ayurvedic and homeopathic medicine in central nervous system disorders, kidney pain, diabetes, inflammation and obesity [137-138]. Alfalfa sprouts or leaves were also used traditionally for the treatment of arthritis, kidney problems, fever, as anti-cancer, anti-rheumatic, cardiogenic, depurative, lactagogue, emmenagogue, antiscorbutic and in the treatment of boils. In South America the plant was used as diuretic and in the treatment of kidney and vesicular swelling [139-140].

2.26. *Melia azedarach*

It was used traditionally in the treatment of intestinal worms, skin diseases, stomach ache, nausea, vomiting, paroxysmal fever, sciatica, lumbago, piles, asthma, wounds, diabetes, post labor pain, amenorrhoea and leucoderma [141-142]. It was said that the plant was beneficial in the treatment of leprosy, inflammation, scrofula, anthelmintic, antilithic, diuretic, deobstruent and cardiac disorders [143].

Leaf extract was given orally twice a day for pyrexia [144], to relieve headache, locally applied in the treatment of burn and other skin diseases, as laxative, and prepared as mouth wash for gingivitis. Leaves and seed were used as insecticide. Stem bark infusion was used in gonorrhoea [145]. The seed oil of was used in traditional medicine as antidiabetic, antifertility, antibacterial, and for wound healing [146].

2.27. *Melilotus Officinalis*

The plant was used as aromatic, emollient, demulcent, maturant, tonic, aphrodisiac, carminative to relieve flatulence and externally applied as poultice for pains and aches. The small fruits were used as demulcent, maturant, tonic, aphrodisiac and in leucoderma [147]. Herbal tea was used as a wash and rinse for swelling and swollen glands, abscesses, and swelling of the lymph nodes. Tea herbs, or the flowers themselves, were applied in cases of cold, mucosity, and respiratory and gastrointestinal disorders. It was also used in idiopathic headaches, long-standing neuralgias, coldness, tenderness, lameness or marked soreness of joints, cold, menstrual colic, ovarian neuralgia, colic with diarrhoea and much [148-149].

2.28. *Melissa officinalis*

The plant was used in folk medicine to enhance memory, as cardiogenic, as antidepressant and anxiolytic, and in the treatment of cardiovascular, respiratory and mental disorders [150]. It was recommended as juice, cream, or tea infusion for nervous complaints, lower abdominal disorders, gastric complaints, hysteria and melancholia, chronic

bronchial catarrh, migraine, nervous debility, toothache, earache, headache, hypertension, and externally, for rheumatism, nerve pains, and stiff necks [151]. It was used in Europe as carminative, digestive, diaphoretic, stimulant, calmative, antiseptic and for the treatment of headache, migraine, insomnia, anxiety, nausea vertigo, syncope, anemia, asthma, bronchitis, amenorrhea, heart failure, arrhythmias, epilepsy and rheumatisms. The plant was also used for cosmetic purposes [152-154].

2.29. *Mentha longifolia*

The leaves were consumed as herbal tea and used as spice. The leaves, flowers and stems were used as carminative, antispasmodic, antiemetic, stimulant, analgesic, anti-asthmatic, in stomach ache and to enhance digestion [155-157]. The aerial parts were commonly used for the treatment of cold, cough, asthma, and chest inflammations, including pulmonary tuberculosis. Externally, *Mentha longifolia* was used to treat wounds and swollen glands [158]. In Iraq, the leaves were used for sore throat, minor mouth, throat irritation, aches, sprains, and as nasal decongestants [159]. In Egypt, the plant was used as analgesic, anti-pyretic, sedative, digestive, for wound healing and as anti-inflammatory [160-161].

2.30. *Mirabilis jalapa*

Leaves were employed for poulticing abscesses and boils. Juices of the leaves were used in treatment of skin allergy, and in earaches in children. Leaves infusion was applied topically to reduce swelling in conditions like bone fractures or twisting. Decoction of *Mirabilis Jalapa* was used orally as diuretic and in the treatment of kidney infections. Stems were used as tonic. The root of *Mirabilis Jalapa* was used traditionally as cathartic, purgative, emetic, in the treatment of abnormal accumulation of pus and or liquid and for inflamed and enlarged lymph-nodes [162-164].

2.31. *Momordica charantia*

The fruit was considered as tonic, stomachic, stimulant, emetic, antibilous and laxative. It was used in the treatment of gout, rheumatism and subacute cases of the spleen and liver diseases. The fruit juice and/or a leaf tea was employed for diabetes, malaria, colic, wounds, infections, worms and parasites, as an emmenagogue, and for measles, hepatitis, and fevers. Root was considered as astringent, abortifacient, anthelmintic [165].

In India, the fruits, seeds and leaves of the plant were used traditionally in the treatment of diabetes [166]. In China, it was used as an appetite stimulant, and in the treatment of gastrointestinal infection [165]. The plant was used in various Asian traditional medicine to stimulate digestion and in dyspepsia and constipation. In Brazil, the plant was used in the treatment of tumors, wounds, rheumatism, malaria, leucorrhea, inflammation, menstrual problems, diabetes, colic, fevers, worms, to induce abortions and topically for skin problems, vaginitis, hemorrhoids, scabies, itchy rashes, eczema, and leprosy. In Mexico, the plant was used in the treatment of diabetes and dysentery. In Peruvian herbal medicine, the leaf or aerial parts of the plant were used to treat measles, malaria, and all types of inflammation. In Nicaragua the leaf was commonly used for stomach pain, diabetes, fevers, colds, coughs, headaches, malaria, skin complaints, menstrual disorders, aches and pains, hypertension and infections [167].

2.32. *Morus alba*

The fruits were used as analgesic, anthelmintic, antibacterial, antirheumatic, diuretic, hypotensive, hypoglycemic, purgative, restorative, sedative and tonic. Fruits were also used as liver and kidney tonic and blood producing stimulator. Roots were used as cooling, sedating, diuretic, tonic, astringent and in the treatment of nervous disorders. Twigs were used as antirheumatic and nervine. Leaves were used as diaphoretic, refrigerant and antipyretic [168-169]. In traditional Chinese medicine, the fruits were used in the treatment of fever, eye diseases, as sudorific, anti-parasitic, hypolipidemic, hypotensive, for rinsing throat in inflammations of upper respiratory system. While, root extracts were used as anti-inflammatory, painkillers and for protection of liver and kidneys [170].

2.33. *Morus nigra*

Morus nigra was used in folk medicine as an analgesic, diuretic, antitussive, sedative, anxiolytic, hypotensive, and in the treatment of inflammatory disorders [171].

2.34. *Musa paradisiacal*

The fruit was used for its nutritional values all over the world [172]. Different parts of this plant (fruit, pulp, leaves) were used in folk medicine for the treatment of peptic ulcer, pain, asthma, burns, diabetes, dysentery, headache, inflammation, rheumatism and tuberculosis [173]. The leaf juice was use to treated insects bites. Leaves were used as an abortifacient. Sap of the plants was used in the treatment of diarrhea, dysentery, hysteria and epilepsy. The root

was used to treat general weakness, anemia, as antiscorbutic, aphrodisiac, and diuretic. Stem extracts were used in the treatment of hyperoxaluric urolithiasis, high blood pressure and kidney disease [174-175].

2.35. *Myrtus communis*

Myrtle was used for medicinal, food and spice purposes since ancient times. The decoction of myrtle aerial part was used as hypotensive, hypoglycemic, anti-inflammatory, for treatment of urethritis, diarrhea, peptic ulcers, hemorrhoids, bleeding, headache, palpitation, leucorrhoea, epistaxis, conjunctivitis, excessive perspiration, pulmonary and skin diseases [176-178]. Fruits were used as antiseptic, astringent, carminative, demulcent, analgesic, anti-inflammatory, antiemetic, diuretic, haemostatic, nephroprotective, for stomachic, and as antidiabetic. Leaves were used as flavouring agent, astringent, antiseptic, blood purification, hypoglycaemic, laxative, analgesic, haemostatic, stimulant and in the treatment of constipation and respiratory diseases [179-180].

2.36. *Narcissus tazetta*

Narcissus tazetta was used in the treatment of Alopecia areate, for the prevention and treatment of damaged skin resulting from conditions like acne vulgaris, atopic dermatitis, alopecia, vitiligo, pruritus, eczema, etc. An essential oil obtained from the flowers was used in perfumery [181]. It was said that the plant possessed emetic, cathartic, antispasmodic, and narcotic properties. It was used in epilepsy, in hysteria, and other spasmodic affections. The root was used to relieve headaches. The chopped root was applied externally as an antiphlogistic and analgesic poultice in abscesses, boils and other skin complaints. In Jordan, the infusion of the aerial parts and flowers were used as anticancer, anti-inflammatory, memorigenic, and sedative. The Bulbs of *Narcissus tazetta* was used for the treatment of breast cancer [182-184].

2.37. *Nasturtium officinale*

It was eaten as a vegetable or salads. The leaves were widely used as a depurative, diuretic, expectorant, hypoglycaemic, hypolipidemic, odontalgic, stimulant, for the treatment of pulmonary diseases, hypertension and cardiovascular diseases. It was also used in abdominal pain, as anti-ulcerogenic, in the treatment of scurvy, tuberculosis, bronchitis, influenza and asthma [185-189].

2.38. *Nerium oleander*

The leaves were used externally in chronic and obstinate skin diseases including leprosy and alopecia. The powder of leaves was used as a snuff for treating epilepsy. Root powdered with water was applied to alleviate venereal diseases and for the treatment of haemorrhoids [190].

2.39. *Nicotiana tabacum*

The written history of tobacco started in the year 1492 when Christopher Columbus discovered American Indians treating patients with leaves of (*Nicotiana tabacum*) an herb which he had never seen before. In 1536, European travelers to the New World carried home a considerable medical knowledge concerning the plant, acquired from Native American. Then the Western European physicians adopted tobacco as medicine [191-192]. Tobacco plant was used mainly as an ingredient of cigarettes, cigars and chew. Tobacco has long been removed from pharmacopoeias and from medical practice. However, tobacco traditionally used for wide range of disorders, it administered externally for bites of poisonous reptiles and insects, pain, neuralgia, gout, to enhance hair growth, in the treatment of ringworm, ulcers, wounds and as respiratory stimulant. It was administered by rectum in constipation and haemorrhoidal bleeding, administered orally in strangulated hernia, malaria or intermittent fever, dislodging obstructive material from oesophagus by inducing vomiting, and it administered by inhalation in nasal polyps. An ointment made of burned tobacco leaves mixed with lanolin was used as dessicant, stimulant and antiseptic for pruritus, ringworm, athlete's foot, superficial ulcers and wounds [193-195].

2.40. *Nigella sativa*

The seeds were used as appetizer, stimulant, diuretic, emmenagogue, galactagogue, anthelmintic, thermogenic, carminative, anodyne, deodorant, digestant, constipating, sudorific, febrifuge, expectorant, purgative, abortifacient, for the treatment of ascites, cough, jaundice, hydrophobia, fever, paralysis, conjunctivitis, piles, skin diseases, dyspepsia, flatulence, abdominal disorders, diarrhoea, dysentery, intrinsic hemorrhage and amenorrhoea [196-200].

2.41. *Ocimum basilicum*

The essential oil of *Ocimum basilicum* were used in food industry as aromatic and flavoring ingredients. Ocimum oils were used in perfumery industry for a long time. It was also used traditionally for the treatment of cancer, convulsion, diarrhea, epilepsy, gout, nausea, sore throat, toothaches, bronchitis, rhinitis, mental fatigue, cold, spasm and as a first aid treatment for snakebites and wasp stings [201-204].

2.42. *Olea europaea*

The edible oil extracted from the mesocarp (pulp) of the fruit was the main product of the olive tree, it was commonly used as a cooking and salad oil. It was much appreciated for its flavor and beneficial effects on health. Lower grade olive oil was used in the manufacture of soap, cosmetics and lubricants. Leaf was applied on fresh wounds as a styptic, and used in the treatment of malaria, diabetes, coughs, urinary tract infections, backaches, kidney problems and to stop nose bleeds as a snuff. Leaf infusion was used as lotion for the treatment of eye infections and relieve sore throats and diphtheria [205-208].

2.43. *Ononis spinosa*

The roots, leaves and flowers were used as antitussive, aperient, diuretic and lithontripic. The plant infusion was used in the treatment of dropsy, urinary tract infections, inflammations and rheumatism [209]. Externally, it was used for the healing of wounds, eczema and the other skin disorders [210]. In Iraq, the aerial part decoction was used as diuretic and mild laxative, and the roots were used as diuretic, blood purative and expectorant [211].

2.44. *Onopordum acanthium*

Seed oil was used for burning and cooking [212]. *Onopordum acanthium* was used in Europe as an edible plant [213]. In Bulgarian folk medicine, the plant was used as refreshing and invigorating [214]. *Onopordum acanthium* was also used as bactericide, cardiogenic and hemostatic and for the treatment of hypotonicity; ripe seeds were used for heart diseases, poor blood circulation, as bactericidal, as hemostatic, diuretic, to treat nervousness and as antitumor agents. Aqueous extract of *Onopordum acanthium*, was used in Jordan traditional medicine in the treatment of various type of cancer. The plant was also used to diminish discharges of mucous membranes, and topically for skin cancer. The infusion of leaves and inflorescences was used to decreases edema of various origins [215-217].

Inflorescences, roots, seeds, and late developing leaves of *Onopordum acanthium* were used internally in the traditional medicine of Central Asia for the treatment of inflammation of the bladder and the respiratory and urinary systems [217-218].

2.45. *Orchis mascula*

Various kinds of Orchis under the name of Sahlep were used for making a wholesome and nutritious drink of the same name. It was rich in mucilage, which formed a soothing and demulcent jelly that was used in the treatment of irritations of the gastro-intestinal canal. One part of Salep to fifty parts of water was sufficient to make a jelly. It was used traditionally as astringent, demulcent, expectorant, nutritive, restorative, invigorator and sexual tonic. In addition to its aphrodisiac effect, it was also used in the treatment of male sexual disorders like erectile dysfunction and impotence, and also as a nervine tonic to treat stress and mental disorders. Furthermore, the plant was also used for the treatment of hypertension and dyslipidemia and given in all forms of wasting diseases [219].

2.46. *Origanum vulgare*

Oregano was an important flavouring herb in Mediterranean cookery, and was often used dried rather than fresh. The leaves were used as a flavouring for salad dressings, vegetables and legumes, and were frequently included in strongly flavoured dishes with chillies, garlic, onions, etc. Flowering branches were used as energy producer, stomach booster, nervous calming, laxative, diarrhea, general weakness of the body, anticancer, migraine, for external use by rubbing in place of numbness and in toothache [220]. Aerial parts were used as disinfection, pain reliever, relaxing, cardio-respiratory booster, antidiarrheal, stomach booster, cough suppressant, sexual dysfunction, sinusitis [221-223]. Seed were bused as anticonvulsant, expectorant, pain reliever, cough suppressant, antidiarrheal, anti-inflammatory, menstrual regulator, diuretic and for the treatment of urinary tract infection [224].

2.47. *Oxalis corniculata*

Juice was taken by to enhance appetite and stop stomach upset including diarrhea and vomiting in adults, children and infants, it also used as anti-nausea in pregnant mothers, and for the treatment of tonsillitis, cough and to enhance wound healing [225]. It was used in the treatment of anemia, dyspepsia, indigestion, dementia, convulsion, piles and jaundice. The leaves' paste was used for the treatment of headache. It also used in scorpion sting and to stop wound bleeding. A

decoction of the roots was used to treat giddiness, dysentery, diarrhea and intestinal parasites. The leaves were used for cold, fever, cough, stomachache, to stop bleeding from wounds and as anthelmintic. It also was used in the treatment of colic, burning sensation of the chest, and menstrual disorders [226-230].

3. Conclusion

This study highlighted the importance of Iraqi medicinal plants in the treatment and management of human diseases and ailments as known by traditional medicine.

Compliance with ethical standards

Acknowledgments

I acknowledged the dean of Thi qar college of medicine for scientific support.

Disclosure of conflict of interest

The authors confirm that this paper's content has no conflict of interests.

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