# Charakterystyka wybranych roślin leczniczych pochodzących z Iraku

## Characteristics of selected medicinal plants from Iraq

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## Streszczenie

W pracy scharakteryzowano najważniejsze rośliny szeroko stosowane w Iraku do celów leczniczych. Zastosowano metodę opisową na podstawie danych literaturowych. Badania wykazały, że wiele roślin leczniczych stosowanych w Iraku, a należących do różnych rodzin botanicznych wykorzystywano w medycynie tradycyjnej do leczenia chorób. W niniejszej pracy przedstawiono 10 najważniejszych roślin należących do 9 rodzin botanicznych, które były i są nadal wykorzystane i używane jako rośliny lecznicze. Większość rodzimych roślin wciąż wymaga szczegółowych badań, które mogą dostarczyć wielu interesujących danych. Znajomość tradycyjnej wiedzy i roślin leczniczych może odegrać kluczową rolę w eksploatacji i odkrywaniu naturalnych zasobów roślinnych w Iraku.

## Abstract

The paper describes the most important plants widely used in Iraq for medicinal purposes. The descriptive method was used based on the literature data. Studies have shown that many medicinal plants used in Iraq and belonging to different botanical families have been used to treat various diseases in traditional medicine. This paper presents the 10 most important plants belonging to 9 botanical families that

were and are still used and used as medicinal plants. Most native plants still require detailed studies that may provide a lot of interesting data. Knowledge of traditional knowledge and medicinal plants can play a key role in the exploitation and discovery of Iraq's natural plant resources.

## Introduction

Iraq community is divided into two parts: Urban and rural Communities, like any other country in Elsewhere in the world, and in the Middle East; each of these communities depends heavily on the rich traditional heritage of medicinal plants used to treat various diseases. Thus, folk medicine is widely practiced by urban dwellers, country people or nomads, who generally inhabit desert and steppe regions. Because of the geographical diversity and climatic conditions, Iraq is well known for the great diversity of wildlife plants [1]. It is located at the confluence of three continents: Asia, Africa, and Europe. Within these continents, there are many different plants. Iraq is bordered in the north, a mountainous region by Turkey and Iran in the east, which has a similar geography, while in the south it is bordered by Saudi Arabia, which is mostly a desert region and, finally in the west it is bordered by Syria. Iraqi Traditional medicine started from the Sumerian period (3000–1970 BC) and then in the Assyrian and Babylonian periods (1970–1989 BC). In one of the manuscripts of the Babylonian heritage, it was one manuscript belonging to the Babylonian king Hammurabi**,** who ruled in 1728–1686 B.C.**,** which particularly referred to medicine and medicinal plants. According to Mohmed et al. [2] and Ghazanfar [3], Iraq has at least 363 species of medicinal plants belonging to about 270 genera of about 98 families. The doctor was named Hakim in that period, and most wise people used medicinal plants to treat various wounds. Among the most famous Hakims was Baker al-Razi (850–923 AD) and Ibn Sina (980–1038a). In the last ten years, traditional medical systems have become a topic of global importance. Current estimates suggest that in many developing countries much of the population depends heavily on traditional practices and medicinal plants to meet basic health care needs. At the same time, many people in developed countries have started looking for alternative or complementary therapies, including medicinal plants [4, 5]. Iraqi plants have been widely used because of their relevant aromas and tastes that add variety and flavor to foodstuffs. In the Erbil-Kurdistan region, many of these plants are used to treat different human diseases but there is no

phyto-therapeutic evidence [3,6]. However, despite many efforts and studies, the most indigenous medicinal plants in Iraq remain to be explored. This work in theoretical research depends on the study of the most important medicinal plants used in Iraq for the purpose of treatment. A descriptive method was used in this study.

## Material and methods

The following databases: PubMed, ScienceDirect, Google Scholar, ProQuest, Semantic Scholar and Cochrane were searched using the following key terms: 'antidiabetic compounds' or 'bioactive compounds' or 'natural compounds', 'herbal carbohydrates', 'health'.

## Admission criteria

Scientific research (*in silico, in vitro* and *in vivo*) has been included, using different research models. Articles published not only in English, but also in Arabic, were also considered in order not to limit the scope of the work. In addition, a manual search was performed to locate previous research articles based on references to published narrative articles and systematic review articles.

## Exclusion criteria

We excluded studies that looked at species other than those discussed in this article. Research was excluded as chapters in books, presentations, letters to the editor, unpublished data, theses. The search results were limited to original scientific articles published between 2000 and 2020. Duplicate articles from different databases were searched and only one was kept. Data on treatment effects and their use in nutrition were extracted.

This theoretical study was conducted on the most important medicinal plants used in Iraq as treatments for different diseases. A comparative analysis of a set of medical literature available in Iraq was adopted. The plants were included in two databases, one of which included the top ten medical plants used in Iraq, the other included the images of those plants and highlights their medicinal uses. The purpose of this study was to demonstrate the importance of these plants and to compare and evaluate their quality and effectiveness in medical use.

## Results and discussion

### The top ten medical plants used in Iraq

In this part has been posted the medicine plants in a Card and Database Technology of 10 plants mentioned in this work, which are given below in importance order [7].

**Table 1.** List of the top ten medicinal plants commonly used as a medicinal plants in Iraq

| English name | Scientific name | Family name | The useful part of plant | Main constituents |
|---|---|---|---|---|
| Souchet Round | *Cyperus rotundus* | *Cyperaceae* | Tuberous roots, tubers, rhizome | flavonoids, alkaloids, saponins and glycerides |
| Maidenhair | *Adiantum capillus--veneris* | *Adiantaceae* | Frond | flavonoids, terpenes, tannins and proanthocyanidins |
| Lime | *Citrus aurantiifolia* | *Rutaceae* | Leaves, fruit, peel, and essential oil | Essential oil containing citral, limonene, β-pinene and fenchone, terpineol, bisabolene and others terpenoids |
| Lallemantia (Balangu) | *Lallemantia royleana* | *Lamiaceae* | Seeds | linoleic, Pand stearic acid, beta-sitosterol. Gum contains L-arabinase, L-rhamnose, pentasans protein, amino acids |
| Horse-mint | *Mentha longifolia* | *Lamiaceae* | Leaves, flowers. | Essential oil containing: linalool and linalyl acetate |
| Caper Bush | *Capparis spinose* | *Capparidaceae* | All parts of the plant | Bitter flavonoid glycosides, mustard oil glycoside and rutin |
| Colocynth | *Citrullus colocynthis* | *Cucurbitaceae* | Pulp and seeds | colocynthium, gum, pectic acid, calcium, magnesium, phosphates, lignin, and water |
| Shaterag | *Fumaria parviflora* | *Fumariaceae* | leaves or seeds | alkaloids fumarine, adlumidicaine and protopine, isoquinoline alkaloids, lahoramine and lahorine |
| Tormentil | *Potentilla erecta* | *Rosaceae* | Roots, leaves, flowers | Tannin, tormentilline, kinovic acid, chinoric-acid, starch, and other sugars |
| Senna | *Cassia acutifolia* | *Caesalpiniaceae* | Dried leaves, dried fruits | anthracenic derivates, free anthraquinones and anthracenosides, eterosides, minerals |

Sources: Own elaboration based on: [2–3, 5, 7, 26, 27, 31]

### Description of medicinal plants

Herbal medicine is a practice of traditional or folk medicine based on the use of part of plants e.g., seeds, roots, berries, bark, leaves, plant extracts, flower buds and flowers for medicinal purposes. Below has been describes the more

important meaning and medical use of plants listed in Table 1. based on literature data.

***Cyperus rotundus* L.**

Scientific sources point out that this plant dates back to South Asia, Central Europe, and Africa, and has been used medically for many medicinal uses: general tonic, diuretic, stomach, diaphoretic, astringent and vermifuge. As used in Iraq to treat gastrointestinal disorders (diarrhea, nausea), as well as to treat fever [5, 7].

Souchet Round (*Cyperus rotundus*) is a perennial plant that may reach a height of up to 140 cm (55 ins) with purple-brown, bisexual flowers. The leaves sprout in ranks of three from the base of the plant, around 5–20 cm (2–8 ins) long, it is dark green, grass-like, with a prominent vein on the underside. The flower stems have a triangular cross-section, bisexual flowers and have three stamina and a three-stigma carpel, with the flower head having three to eight unequal rays. The fruit is a three-angled achene. The root system of a young plant initially forms white, fleshy rhizomes, up to 25 mm (1.0 ins) in dimension, in chains. Some rhizomes grow upward in the soil, and then form a bulb-like structure from which new shoots and roots grow, and from the new roots, new rhizomes grow. Other rhizomes grow horizontally or downward and form dark reddish-brown tubers or chains of tubers [7]. Motha (*Cyperus rotundus* L.) is a one of the most invasive known weeds. This species has spread to tropical, subtropical, and temperate regions. *Cyperus rotundus* is a very popular remedy for various ethnic groups. It is used in Ayurvedic and traditional practice for the production of antibacterial, antimalarial, anti-inflammatory, antidiarrheal, antimicrobial, antioxidant, cytotoxic and other drugs. However, it is reported that moth has limited activity against various forms of infectious diarrhea due to its selective action against pathogens of diarrhea [8].

***Adiantum capillus-veneris* L.**

This plant is used on the medical level as antiseptic, antiviral, against cough and at colds, as a medicine. Its origin is southern Europe, its medical use in Iraq is to treat stomach cramps, gastrointestinal convulsions, infections, and flatulence. It is also restorative and tonic [7]. Plant Description: Grows to 20–70 cm tall, with light green twigs very delicate, a lot of the pinnae are divided into 5–10 mm long and wide, the frond rachis is black and wired [5]. Maidenhair fern (*Adiantum capillus-veneris* L.) is an herb belonging to the family *Pteridaceae*. It grows from 15 to 30 cm height; its branches

originate in groups from creeping roots from 20 to 70 cm length, with very light green fronds very much divided into pinnae 5 to 10 mm long and wide. The frond rachis is black and wired**.** It is named "Pare-siavashan" in medical and pharmaceutical books of Iranian Traditional Medicine. Because of different chemical compositions, the herb fronds were also described for its numerous pharmacological effects [9].

Maidenhair fern (*A. capillus-veneris*) is an endangered endemic species in this region. His widespread congener is *Adiantum reniforme* var. *sinensis* (*Adiantaceae*). The latter species has a relatively higher tolerance to drought, but lower one in low light conditions, enabling it to stay in habitats with low soil moisture and high light availability [10]. *A. reniforme* var. *sinensis*, on the other hand, prefers partially shaded, moist but well-drained habitats on slopes. However, due to human activities, its main habitat today is cliffs or bare rocks with a steep slope with poor and thin soil. Relatively high energy requirements and low photosynthetic capacity in these habitats may limit a species' ability to increase population or interspecies competition, and thus increase its threat [10].

***Citrus aurantiifolia* (Christm.) Swingle**

Lime (*Citrus aurantiifolia* Christm.) is another plant of medicinal plants used for medicinal purposes and has been cultivated for centuries throughout Asia and the Middle East. Scientific sources state that its original habitat is South-east Asia. Medical use in many areas: Anti-virus, disinfectant, tonic, to fight colds, cough. In Iraq, in addition to its previous uses, it is described as treating gastrointestinal convulsions, abdominal distension and inflammation [7].

Plant Description: Evergreen shrub or a large branch tree with a height of up to 5 meters, many sharp spines on the stems and beside the leaves, shiny green leaves, 6–8 cm long, elliptical fruitlike or oval, diameter of 6 cm but usually smaller, thin, although it is often used when green. Tends to be more aromatic in flavor and smell than other lemons [5].

Recently Vong et al. [11] studied how the juice of *Citrus aurantiifolia* and aqueous extracts of cinnamon bark and *Cytrus hystrix* (kaffir lime) affected the kinetic growth of Pseudomonas aeruginosa and methicillin and the resistance of *Staphylococcus aureus* (MRSA). Some studies pointed that lime juice effectively eliminated *P. aeruginosa* and MRSA. The extract of lime juice and disinfecting mixture effectively disinfect fomites. The traditional uses of this plant in the treatment of scurvy and obesity, AIDS prevention and contraception are known and widely reported. Various names for citranquat (Citrus ×

georgiana) and "sunrise lime" or "faustrimedin" (*C.* × oliveri) are commercially significant [7, 11]. Further research should be conducted in the use of lemon juice as a disinfectant in a hospital environment, for which *auranthifolia* has antibacterial activity against endemic microorganisms.

***Lallemantia canescens* (L.) Fisch. & C.A.Mey.**

Lallemantia (Balangu) (*Lallemantia canescens* L.) is one of the most used medicinal plants in Iraq. Scientific sources indicate that the original habitat of this plant is Central Asia, and it was found throughout Afghanistan, Turkestan, and North India. The moistened seeds are used to treat cysts and infections and are considered to be clutching, tonic to the heart and intestinal troubles. In Iraq, its seeds are used in soft drinks to treat, gastrointestinal problems and in treatment of abscesses (dimples) [3, 7].

Plant Description: It is a high-growth grassy herb. They grow between 20–60 cm, with green leaves, silky light white flowers, in axes in axils of leaves. This plant tastes somewhat like anise, with a strong sweet aroma [3].

Serpooshan et al. [12] proves that *Lamiaceae* is an important family, most species of which, including *Lallematia*, are recognized as useful plants with medicinal, aromatic, and ornamental properties. The most important compounds in the family are essential oils that accumulate in the glandular hairs that are characteristic of the subfamily *Nepetoideae*. In addition, *Lamiaceae* species produce various phenolic components. The most common phenol groups are flavonoids and caffeic acid esters [2].

***Mentha longifolia* L.**

Horse-mint (*Mentha longifolia* L.) is used as a treatment for headaches and the infusion of the leaves is taken as a cooling medicine. Dried leaves and flower tops are carminative and stimulant. In Iraq it is used for the problems of digestive abortion and colic. The origin of this plant dates back to eastern North America [3, 13–15].

Plant Description: The horsemint is an aromatic persistent herb. Leaves trunk lanceolate, oval or rectangle, teeth, almost weakly arranged on the leg. Small flowers, purple, in threading formation of a slender height often breaking down below, carried at the ends of the branches and forming a lax densely hairy inflorescence. Species of the genus *Mentha* belong to the most popular essential oil plants. However, they prevail *M.* × *piperita* L., *Mentha spicata*, *M. canadensis* predominate [14, 15]. In Iraq *Mentha longifolia*, as a medicinal plant, is grown on a commodity scale, the raw material of which

is herb and leaves collected before flowering, containing as well volatile metabolites polyphenolic compounds including phenolic acids and their esters, flavonoids, terpenes, organic acids, and mineral compounds. The most abundant compounds identified in the EO from *M. longifolia* were menthone and eucalyptol; in C. reticulata EO, they were β-caryophyllene, β-caryophyllene oxide, and β-element. EOs from *M. longifolia* at 500 and 250 μL/mL, showed potent antifungal activity against A. flavus and A. fumigatus, with 100% fungal mycelial inhibition growth (FMIG). *M. longifolia* EO, at 500 and 250 μL/mL, were showed potent activity against *A. niger* [13, 15].

***Capparis spinosa* L.**

Caper Bush (*Capparis spinosa* L.) this is an origin medical plant, according to scientific references to the Mediterranean or West and Central Asia, is used medically as diuretic, kidney disinfectant, gas repellent, low back treatment, in Iraq it is used for the same medicinal purposes [2].

Plant Description: It is an evergreen shrub and rosette, trailing, pitched grow up to 1–2 m in height. The leaves are alternate, round to oval, thick, and shiny. Plant leaves may form in the spine. White flowers with many purple vesicles. Large seeds, kidney-shaped, gray-brown. There is still no conclusive information regarding the association between *C. spinosa* and its health benefits, although many studies using various parts of C. *spinosa* have reported diverse pharmacological activities including anti-diabetic and anti-hypertensive [2, 16, 17].

Capers are a shrub climbing plant occurring in the tropical zone and in the Mediterranean Basin. *Capparis spinosa* is an important source of various secondary metabolites. Therapeutic properties of this species were already known by the ancient Romans. Many biologically active chemical substances have been isolated and identified from different parts of C. *spinosa* (stalks, roots, seeds. It was found, among others, that the *Capparis spinosa* flower bud extract exhibits anti-inflammatory activity as it reduces the secretion of inflammatory mediators (Interleukin 8-IL 8). Caper buds, known for a long time for their taste, help digestion, have a relaxant, astringent, diuretic, are also used in respiratory infections and atherosclerosis [16]. Zhang & Ma [17] deny this and claim that there is no evidence that thorny capers or their extracts can relieve the condition of cardiovascular diseases and diabetes**.** However, various parts of the *C. spinosa* plant are used in traditional medicine in Iraq and methods for their preparation are described. There is also evidence suggesting a large benefit from *C. spinosa* in improving human health. Therefore,

the relationship between *C. spinosa* and healing effects in the field of human health requires further research.

***Citrullus colocynthis* (L.) Schrad.**

Colocynth (*Citrullus colocynthis* L.) is plant used medically in Iraq for the treatment of hemorrhoids and rheumatism, reducing blood sugar, purgative as scientific sources referring plants to an original home show that this plant is found in Turkey and also in Africa and Asia [1].

Plant Description: An annual plant resembling a common melon. The stems are grassy and wrapped in coarse hair, and the leaves stand alternately on long leaves are strongly lobed. In the corners of the leaves has a clinging mustache. Yellow flowers, showing individually in axes of leaves, spherical fruit, orange, yellow and petioles. The smooth, contains a white spongy pulp enclosing numerous ovate compressed white or brownish seeds [1,3].

*Citrullus colocynthis* (L.) Schrad. is commonly known as colocynth. Colocynth fruit flesh has healing properties, and the seeds have nutritional properties. The yellowish fruit, very bitter, is a powerful stimulant of the liver and catagen. Ethanol extract from aboveground parts shows mutagenic activity and activity against Salmonella typhimurium strains. It is even said that fruits have anticancer activity [3]. *C. colosynthis* is resistant to high temperatures and grows in the desert regions of North Africa, the Middle East, and West Asia. Extract of *C. colocynthis* was found to exhibit a hypoglycemic effect, which can be attributed to a greater extent to the presence of saponin in addition to the presence of glycoside components. *C. colocynthis* probably carries genes that can be tested to induce abiotic stress resistance in transgenic plants. Although tissue culture and molecular biology of this species were studied, the latter was primarily used to solve taxonomic relationships with other species of the genus *Citrullus* and *Cucubates* [18].

***Fumaria parviflora* Lam.**

Shaterag (*Fumaria parviflora* Lam.) is the type of plant spreads throughout the world has been found on a large scale and in many parts of it, native in Asia, Europe, and Africa, medically the plant is used as an anthelmintic, laxative, and also used for skin disorders and indigestion. The seeds are used as a stimulus in painful swelling, against stomach pains, blood abscesses and blood purification, and in Iraq is used for treating skin disorders [19].

Description of the plant: Annual herb, up to 15–40 cm, erect or climbing plant. The flower stalks have about twenty white or pink-flushed flowers with blackish-red extremities on the lateral petals. The leaves area unit divided into slender segments. Shaterag is a plant with a well-known abundance of isoquinoline alkaloids [5, 7].

*Fumaria parviflora* Lam. (*Fumariaceae*) is a traditional healing herb used in diseases associated with blood, skin and liver and other human ailments, such as: Abdominal cramps, diarrhea, fever, laxatives, choleretic, diaphoretic, diuretic, laxative, sedative, toning and syphilis [7]. This species is endangered. A special callus breeding protocol has been developed for him to protect this plant in vitro. UPLC-MS / MS profiling revealed that Calli induced on the test media are capable of producing isoquinoline alkaloids. Eight alkaloids from the aerial parts of the crop were isolated and their cytotoxicity to human dermal fibroblasts (HF) was determined and the wound healing activity was confirmed by an in vitro scratch test. The structural similarity between the isolated alkaloids made it possible to study the structure-activity relationship (SAR), including sanguinarine showing strong activity compared to other alkaloids. The imine ion and methylenedioxyphenol additionally enhance its activity [32].

***Potentilla erecta* (L.) Raeusch.**

Tormentil (*Potentilla erecta* L.) is a well-known medicinal plant with antibiotic and astringent properties. In Iraq, it is used by women to stop significant bleeding. Currently, there are monographs on Tormentillae rhizome in the European Pharmacopoeia, as well as a monograph by the Commission on Herbal Medicinal Products as traditional medicine. The original habitat of this plant is temperate regions in Europe and Asia [5, 7, 20].

Plant Description: It is a creeping herbaceous plant up to 15 cm high. Leaves with 3–5 leaflets and many flowers with 4 petals. It is a widespread perennial that spreads by stolon's. The leaves are silver underneath and pinnate with 7 to 12 leaf pairs and the flowers are yellow with five petals. *Potentilla erecta* is harvested before or during flowering, while rhizomes of this species are dug up in the fall, spring or before the flowering of the plant. These raw materials include catechin tannins up to 15%, ellagic acid, glucoside – tormentiozide, quinin acid, tormantol, termentylin, flobafenes, resins, waxes, vegetable gums, flavonoids, mineral salts, and vitamins [7, 20].

Extracts from *Potentilla erecta* raw materials work remarkably astringent, antiseptic, anti-haemorrhaging, anti-inflammatory and protective against liver

parenchyma [20, 21]. In Armenia, rhizomes, and green material *Potentilla erecta* are also used as a medicine. Extract from cinquefoil has a vasoconstrictor effect, it is used in burns, diarrhea and other skin diseases and oral diseases. An alcoholic tincture made from rhizomes is used for intestinal and pulmonary problems and to stop uterine bleeding, to reduce diarrhea, reduce joint pain, rheumatism, liver and too is used to treat heart disease. Extract from this herb was also given as a painkiller, expectorant, and antibiotic for wounds [21]. *In vitro* and *in vivo* studies confirm the traditional use of *Potentilla erecta* in the treatment of diarrhea and mucositis despite the lack of sufficient clinical studies [33].

Tormentil is the main vegetable astringent. Astringency in the widest sense must be the theme for this herb. Tannins have been identified as the astringent compounds in medicinal plants. They exert their effects through local action in the digestive tract in, for example, diarrhoea. The absorption of large amounts of compounds into the systemic circulation is an important research topic, but to be responsible for these procedures, the compounds included in tannins and other active substances should be very carefully examined [22].

***Senna alexandrina* Mill. syn. *Cassia angustifolia* Vahl.**

Senna (*Senna alexandrina* Mill./ *Cassia angustifolia*) is the type of plant is used medically in Iraq to treat constipation, it is laxative, cathartic, and its native habitat is tropical Africa [7].

Plant description: A plant with trunks and light green branches up to 60 cm high. The alternate leaves are double-edged, with four or five pairs of floral or patterned leaves of green and gray in color. Yellow flowers are a rectangular pod of about 5 cm long [5, 7].

*Cassia angustifolia* Vahl., commonly known as Senna. It is known for its various healing properties in various medicine systems. Cassia angustifolia (senna) has a variety of medicinal uses in Unani as well as in other traditional medicine systems. The plant is valued primarily for its laxative properties and is especially useful in habitual constipation. The laxatives sennoside A and sennoside B, isolated from senna leaves and pods, are important ingredients in laxatives. The plant has been tested for various chemical components and pharmacological properties [34]. Senna is regulating intestinal functions, increases peristaltic movements of the large intestine through local action on the intestinal wall. It is used as an expectorant, descale and laxative. It is also useful in the loss of appetite, enlarged liver, enlarged spleen, indigestion,

malaria, skin diseases, jaundice, and anemia. *Cassia angustifolia* paste is used in various skin diseases**.** The diagnostic features of the powder include single-cell hair covering, parasitic stomata. Standardization of formulations containing *C. angustifolia* leaf material is used [5, 7]. Singanaboina & Chinna [23] used stomatal signs as an aid in the taxonomy of medically useful plants of the genus *Cassia*. This will help to identify and confirm the authenticity of these medicinal plants on the basis of stomatogenesis.

## Conclusion

In the opinion of Ahmed [2], who was involved in ethnobotanical research in Kurdistan (Iraq), the *Lamiaceae* family is the most important family belonging to medicinal plants (7 species), followed by *Apiaceae*, *Asteraceae* and *Fabaceae* (6 species each). The most commonly used plant parts are leaves (46%), then flowers (15%) and seeds (10%). The most common method of using herbs was decoctions (68%), while few used them as a vegetable (13%) or as a powder (10%).

Both public consumers and healthcare professionals need reliable and up-to-date information on the safety and effectiveness of medicinal plants. National policies and regulations on herbal remedies can ensure the safety, quality and effectiveness of these treatments and products and act as important steps towards integrated health care systems. The rational use and further development of herbal medicines will be supported by further appropriate scientific studies of these herbs, and therefore the development of guidance for these studies is a very important issue [1, 6, 26–31].

The present work has presented 10 plants belonging to 9 different families which have been used and are still in use as medicinal plants. Many of the population of Iraq depend largely on these traditional uses of medicinal plants. These uses need to be investigated pharmacologically to confirm the biological activities claimed for them. Despite many efforts and studies, however, the most indigenous medicinal plants in Iraq still remain to be explored.

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Do cytowania:
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