

Traditional Medicine in Syria: Folk Medicine in Aleppo Governorate

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The use of Traditional Arabic Medicine (TAM) for various diseases has been popular but scarcely studied in Syria. In the present study, we carried out ethnobotanical and ethnopharmacological research on the plants traditionally used to cure various diseases in northern Syria. The information was collected from the city and villages of the Aleppo governorate "Mohaafazah" in the north of Syria, collecting data directly on the basis of a detailed survey of inhabitants and herbalists.

In this survey, we found that hundreds of plant species are still in use in TAM for the treatment of various diseases. We selected the most common 100 species, used in the treatment of more than 25 diseases. Among these plants, 53 are used for treating gastrointestinal disorders, 38 for respiratory system diseases, including asthma, bronchitis and cough, 34 for skin diseases, 21 for diabetes, 17 for kidney and urinary disorders, 16 for cardiac disorders, 14 for infertility and sexual impotency, 13 for treating liver diseases, 13 for several types of cancer, 9 for enhancing breast milk excretion, 8 for weight loss, 5 for reducing cholesterol, and three for weight gain.

Plants were collected and identified: scientific Latin names, local names, the used parts of the plant, the herbal preparations and the local medical uses are described. Scientific literature concerning the activity of the investigated species is also reported and discussed according to their traditional uses.

Keywords: Traditional Arabic Medicine (TAM), northern Syria, Aleppo region, medicinal plants, common diseases.

Traditional medicine (TM) has been defined by the WHO as: 'referring to health practices, approaches, knowledge, and beliefs incorporating plant-, animal- and mineral-based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being' [1]. TM is based on local knowledge and socio-cultural and religious beliefs, developed overtime by local people within their belief systems and specific environmental (particular biodiversity) conditions of a definite area. It can vary greatly from country to country and from region to region and can involve varying levels of training and efficacy. Although modern medicine is currently available in many developing countries, large proportions of the population in these countries still largely rely on traditional practitioners and medicinal plants for therapeutic purposes. Indeed TM is often the first choice for providing primary health care in developing countries and the World Health Organization (WHO) estimates that more than 80% of health care needs in these countries are met through

traditional health care practices, being the cheapest and most accessible.

WHO in many circumstances has considered the integration of TM into the official health care system as an increase in manpower that could provide a higher degree of health coverage [2a-2d]. For these reasons, efforts to recognize, coordinate and regulate the practice of TM are significantly important. In addition, the associated biodiversity of the species used is important in the conservation and sustainable use of biodiversity.

Syria, like its neighboring countries in the Middle East, has been distinguished throughout history by a rich inventory of natural medicinal substances. The Arabic Republic of Syria is a Mediterranean country bordered by Turkey in the north, Jordan, in the south, Lebanon and the Mediterranean Sea in the west, and Iraq in the east. Although Syria is a small country, it has a great diversity of plants. This diversity is generally attributed to the varied

Table 1: Most common plants used for treatment of human ailments in north Syria.

Scientific name	Family	Local name		Used part(s)	Preparation(s)	Administration	Traditional use
<i>Achillea santolina</i> L.	Asteraceae	أخيليا، قيصوم	Akhilia, Qaisoum	flowers	flowers are crushed and prepared as tea	oral	gallbladder stones, atherosclerosis, anti-cancer, anti-gastritis
<i>Alchemilla vulgaris</i> L.	Rosaceae	رجل الأسد	Rijl alasad (lion leg)	leaves	decoction	oral	weight loss
<i>Alhagi maurorum</i> Medik.	Fabaceae	عاقول	Aakool	whole plant	branch exudates, decoction	oral	infertility, impotency in male, expectorant, kidney stones, rheumatism
<i>Allium cepa</i> L.	Alliaceae	بصل	Basal	leaves, bulbs	juice	oral, external	hypotensive, diuretic, antibacterial, expectorant, hypoglycemic
<i>Allium sativum</i> L.	Alliaceae	ثوم	Thoom	Seeds	juice, powder	oral, external	hypotensive, antiseptic, treating insect bites, hypoglycaemic
<i>Aloe vera</i> (L.) Burm.f.	Liliaceae	الصبر	Alsabr	leaves	leaf extract or juice	oral, external	sun burns, laxative, anti-inflammatory, carminative
<i>Althaea officinalis</i> L.	Malvaceae	ختمية طبية	Khatmiea	leaves, flowers	leaves and flowers are crushed and prepared as tea	oral	cough, respiratory infections
<i>Althaea rosea</i> (L.) Cav	Malvaceae	الخطمي	Khatmi	roots, leaves, flowers	decoction	oral	peptic ulceration, expectorant
<i>Ammi majus</i> L.	Apiaceae	الخلعة البرية	Khelleh	seeds	Soaked seeds in water	oral	urinary infections, contraceptive
<i>Anchusa italica</i> Retz. and <i>A. azurea</i> Mill.	Boraginaceae	لسان الثور	Lisan althwar	flowers, leaves	flowers and leaves are crushed and prepared as tea	oral	hypoglycemic, respiratory tract diseases, antitussive, anti-fever, rheumatism, peptic ulcer, diuretic
<i>Anethum graveolens</i> L.	Apiaceae	شبت	Shabat	aerial parts	raw aerial parts as salad	oral	antispasmodic, galactagogue, tranquilizer, carminative; stimulant
<i>Apium graveolens</i> L.	Apiaceae	الكرفس	Crafs	seeds	decoction, soaking in hot water	oral	gout, urinary infections
<i>Artemisia herba-alba</i> Asso.	Asteraceae	شيع	Sheeh	leaves, flowers	leaves and flowers are crushed and prepared as tea	oral, external	hypotensive, emmenagogue, anthelmintic, eczema
<i>Artemisia abrotanum</i> L.	Asteraceae	قيصوم	Kaisoom	whole plant	decoction	oral, external (bath)	antispasmodic, anti-fever, neurotrophic, digestive, hypoglycemic, anthelmintic,
<i>Arum dioscoridis</i> Sm.	Araceae	سم الأفعى	Sum alafaa	roots	roots are soaked in water and ground	oral	anti-tumor, cytotoxic, abortive
<i>Arum maculatum</i> L.	Araceae	لوف	Loof	leaves, bulbs	decoction	oral	cancer, constipation
<i>Avena sativa</i> L.	Poaceae	شوفان	Shufan	bran	soaking in hot water	oral	weight loss, diabetes, hypercholesteremia
<i>Brassica oleracea</i> var. <i>capitata</i> DC.	Cruciferae	ملفوف	Malfoof	leaves	leave juice, ironed leaves	oral, ironed leaves externally	weight loss, diuretic, cardiogenic
<i>Capparis spinosa</i> L.	Capparidaceae	القيار	Kabbar, Shafallah	fruit, flower buds, bark and root bark	picked, cooked	oral	diuretic, anti-cancer, anti-arthritis .
<i>Capsicum annuum</i> L.	Solanaceae	فليفلة حمراء	Fleifleh	fruits	juice	oral	urinary infections
<i>Carum carvi</i> L.	Apiaceae	الكرابوية	Carawia	seeds	soaked seeds	oral	antispasmodic, galactagogue digestive, diuretic, appetite enhancer
<i>Cassia angustifolia</i> Vahl.	Fabaceae	السنامكي	Senna	leaves, dry fruits	decoction	oral	weight loss, constipation
<i>Centaurea calcitrapa</i> L.	Asteraceae	دردار	Dardar	Seeds, roots	soaking in water	oral, external	appetite enhancer, diarrhea,
<i>Cerasus vulgaris</i> Mill.	Rosaceae	الكرز الحامض	Sour karaz, Washna, (Sour Cherry)	fruit	fresh, dried, jam	oral	gout, diuretic, urinary infections
<i>Cichorium intybus</i> L.	Asteraceae	هندباء برية	Hindubaa	roots	juice, boiled syrup	oral	diabetes, diuretic, urinary infections, tonic, cholagogue anemia
<i>Citrullus colocynthis</i> (L.) Schrad.	Cucurbitaceae	حنظل	Hanthal	fruits	juice	oral	diabetes, gout, edema, cardio-tonic, cirrhosis, purgative
<i>Colchicum autumnale</i> L.	Liliaceae	لحلاح، وحواح	Lahlah	seeds	seeds are ground finely	oral	gout, cancer, arthritis, (very toxic)
<i>Convolvulus arvensis</i> L.	Convolvulaceae	مادة	Maddada	leaves, roots	tea of leaves, juice of roots	oral, external	constipation, (laxative), hemorrhage, wound healing, cholagogue
<i>Coriandrum sativum</i> L.	Apiaceae	كزبرة	Kuzbara	fruits, seeds	decoction	oral, external	Diabetes, anorexia, atherosclerosis, spasmolytic, cholagogue, hypertension, rheumatism
<i>Crataegus monogyna</i> Jacq.	Rosaceae	الزعرور	Zaaroor	flowers, fruits	decoction	oral	hypertension, headache, atherosclerosis, cardio-ionic, angina, kidney and gallbladder stones, anxiolytic, anti-hypercholesteremia
<i>Crataegus azarolus</i> L.	Rosaceae	الزعرور الأصفر	Yellow zaaroor	flowers, fruits	decoction	oral	hypertension, headache, atherosclerosis, cardio-ionic, angina, kidney and gallbladder stones, anxiolytic, anti-hypercholesteremia
<i>Crocus sativus</i> L.	Iridaceae	زعفران	Zafaran	flowers, leaves	tea	oral	antidepressant, infertility, impotency in male
<i>Cucurbita maxima</i> Duchesne. ex Lam	Cucurbitaceae	القرع	Kara	seeds	emulsion prepared from the seeds	oral	hypertrophy of prostate, anthelmintic
<i>Cuminum cyminum</i> L.	Apiaceae	الكمون	Kammoon	seeds	decoction	oral	antispasmodic, antitussive,
<i>Cupressus sempervirens</i> L.	Cupressaceae	السرو دائم الخضرة	Sarw	inner barks	powder	oral, external, or inhalation	antibacterial, urinary infections, rheumatism, vasoconstrictor, expectorant
<i>Cynara scolymus</i> L.	Asteraceae	الأرضي شوكي	Ardi- shuki	fruits	fresh fruits	oral	Jaundice, diuretic, hepatic impairment, atherosclerosis
<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	التجليل	Najil	aerial parts	decoction, juice	oral	diuretic, kidney stones, blood purification
<i>Dianthus strictus</i> Banks & Sol.	Caryophyllaceae	قرنفل بري	Kuronfol	flowers and leaves	leaves and flowers are crushed and prepared as tea	oral, external	hypotensive, diuretic, tonic, antibacterial, hair growth

<i>Ecballium elaterium</i> (L.) A.Rich.	Cucurbitaceae	قثاء الحمار	Kithaa Alhimar	fruits	juice	oral	jaundice, cancer, constipation
<i>Echinops gaillardotii</i> Boiss.	Asteraceae	شوك الجمل	Shawk aljamal	seeds,	seeds are ground to powder	oral	anti-inflammatory, galactogogue
<i>Eriobotrya japonica</i> (Thunb.) Lindl.	Rosaceae	اكيدنيا	Akidenia	leaves, fruits	decoction of leaves, raw fruits or fruit juice	oral	leaves: diabetes, analgesic, antibacterial fruits: nutrient, thirst, hypercholesteremia
<i>Eruca sativa</i> (L.) Cav.	Cruciferae	جرجير	Jarjeer	leaves, seeds, oil	juice, oil, seeds powder	oral, external	male impotency, antibacterial, hair growth, digestive
<i>Eryngium campestre</i> L.	Apiaceae	قرصعنة	Kursanneh	root, flower	powder	oral	urinary infections, anxiolytic, vulnerary
<i>Eucalyptus globulus</i> Labill	Myrtaceae	الأوكاليبتوس	Eucalyptus	leaves	decoction	inhalation, oral	chronic bronchitis, influenza, antiseptic, antispasmodic, antibacterial
<i>Ferula hermonis</i> Boiss.	Apiaceae	زلوع	Zallo'	roots, seeds	decoction	oral	infertility, male and female impotency
<i>Foeniculum vulgare</i> Mill.	Apiaceae	شمره	Shumra	fruits, leaves,	decoction (fresh or dry leaves and fruits)	oral	weight loss, galactogogue, constipation
<i>Gallium aparine</i> L.	Rubiaceae	لصيق	Lassiq	aerial parts	decoction	oral	jaundice, wound healing, bleeding
<i>Gundelia tournefortii</i> L.	Asteraceae	سلبين	Salbin	Stems	stems are cooked and prepared as a soup	oral	hepatic protective
<i>Hedera helix</i> L.	Araliaceae	لبلاب	Lablab	aerial parts	decoction	oral	asthma, appetite enhancer, whooping cough
<i>Hordeum vulgare</i> L.	Graminaceae	شعير	Shaer	seeds	sprouted seeds	oral	weight loss, peptic ulcers, neurostimulant
<i>Hypericum perforatum</i> L.	Hypericaceae	حشيشة القلب	Hashishet alkaib	aerial parts	tea	oral, mouth wash	dysmenorrhea, expectorant, sedative, analgesic, anxiolytic, antiseptic, mouth wash, pressor agent.
<i>Hypericum triquetrifolium</i> Turra.	Hypericaceae	عرن	Aran	flowers, leaves	extract	oral	anxiolytic, antidepressant
<i>Juglans regia</i> L.	Juglandaceae	الجوز	Jauz	seeds, leaves	Seeds or decoction of leaves	oral, mouth wash	hypotensive, anemia, stimulant, laxative, anti-inflammatory, antiseptic, sexual impotency
<i>Juniperus oxycedrus</i> L.	Cupressaceae	شربين	Sharbin	fruits	decoction	oral, external (bath, rubbing)	diuretic, urinary tract infection, rheumatism, gastric secretogogue
<i>Laurus nobilis</i> L.	Lauraceae	الغار	Ghar	leaves	leaves are crushed and prepared as tea	oral	antiseptic, headache
<i>Lavandula stoechas</i> L.	Lamiaceae	خزامي	Khuzama	flowers, flowering stems	decoction	oral, external	menstrual complaints emmenagogue, antiseptic (wounds, burns), insomnia, rheumatism
<i>Leontice leontopetalum</i> L.	Berberidaceae	طقطيق	Taktik	leaves	leaves are prepared as tea	oral	anti-tumor
<i>Lupinus termis</i> Forssk.	Fabaceae	ترمس	Termes	seeds	powdered seeds	oral	diabetes
<i>Malva sylvestris</i> L.	Malvaceae	خبيزة	Khubbeizeh	flowers, leaves	leaves and flowers are crushed and prepared as tea	oral, mouth wash	cough, respiratory infections, laxative, oral wash
<i>Matricaria chamomilla</i> L. (Loefl) Sch. Bip.	Asteraceae	بابونج عادي بابونج ذهبي	Babunaj aadi Babunaj dahabi (golden)	flowers	flowers are prepared as tea	oral	cough, expectorant, influenza, sedative, migraine, skin diseases
<i>Medicago sativa</i> L.	Fabaceae	فصة	Fassa	fruits	juice, fresh fruits	oral	galactogogue, metabolism stimulant
<i>Mentha pulegium</i> L.	Lamiaceae	التعناخ	Naanaa	leaves	decoction	oral, external	antiseptic, menstrual complaints, diaphoretic, sedative, itching
<i>Mellissa officinalis</i> L.	Lamiaceae	مليسة	Mellisa	leaves, flowers	leaves and flowers are crushed and prepared as tea	oral	carminative, antispasmodic, depression, anxiety, cough, respiratory infections
<i>Micromeria myrtifolia</i> Boiss. & Hohen	Lamiaceae	شاي الجبل، الزوفا	Zufa	aerial parts	decoction	oral	influenza, anemia, antiseptic, expectorant, carminative
<i>Morus alba</i> L.	Moraceae	التوت	Toot	leaves, fruits	leaves: decoction fruits: raw	oral	hypoglycemic, atherosclerosis, hypotensive, anticoagulant
<i>Myrtus communis</i> L.	Myrtaceae	أس	Aass	fruits, leaves	leaves are crushed and prepared as tea, juice is prepared from raw fruits	oral, inhalation, external	diarrhea, hemorrhoids, respiratory tract diseases
<i>Narcissus pseudonarcissus</i> L.	Amaryllidaceae	الترجس	Narges	bulbs, leaves, flowers	leaves, bulbs, and flowers are crushed and prepared as tea	oral, external	antispasmodic, tranquilizer, treatment of hemorrhoids, skin diseases
<i>Nasturtium officinale</i> R.Br.	Cruciferae	جرجير مائي، قررة العين	Rashad, jarjir	leaves, aerial parts	juice is prepared from raw leaves and aerial parts are	oral	carminative, impotency in male
<i>Nigella sativa</i> L.	Ranunculaceae	حبة بركة (حبة سوداء)	Habbet barakeh, habbeh sauda' a	seeds	seeds are ground finely, oil used topically	oral, external	expectorant, carminative, impotency in male, antispasmodic, hair growth, hypoglycemic
<i>Notobasis syriaca</i> (L.) Cassini	Asteraceae	الخرfish	Kharfish	young stems, seeds	cold or hot extracts	oral	hepato-stimulant, protective effects on liver, jaundice, vaso-constrictor
<i>Ocimum basilicum</i> L.	Lamiaceae	حبق	Habaq	aerial parts	decoction	oral, external (wash for wound)	digestive, hypoglycemic, anti-emetic, expectorant, appétit enhancer, mild diuretic, mouth wash
<i>Olea europaea</i> L.	Oleaceae	الزيتون	Zaitoon	leaves, fruits, branches, oil	leaves and branches are boiled	oral, external	diabetes, hypertension, vasodilator, laxative, hyperacidity, skin diseases
<i>Onopordum cynarocephalum</i> Boiss. & Blanche	Asteraceae	قندريس	Kandares	leaves, flowers	leaves and flowers are crushed and prepared as tea	oral	cancer, cardiotonic
<i>Origanum syriacum</i> L.	Lamiaceae	زعر خليل، مردقوش	Zaatar Khalil, mardakoosh	aerial parts	aerial parts are crushed and prepared as tea	oral, external	carminative, digestive, diuretic, headache, rheumatism, antiseptic
<i>Papaver rhoeas</i> L.	Papaveraceae	شقائق النعمان	Shakaek alnuman	flowers, leaves	soaking (decoction)	oral	headache, hypnotic, analgesic, relieves stress,

<i>Peganum harmala</i> L.	Zygophyllaceae	الحرملة	Harmel	seeds, fruits	crude preparation of seeds, extract	oral	stimulant, galactagogue, analgesic, anti-ulcer, digestive
<i>Petroselinum sativum</i> Hoffm.	Apiaceae	البقدونس	Bakdoones	leaves and aerial parts	juice	oral	anemia
<i>Pimpinella anisum</i> L.	Apiaceae	اليانسون	Yansoon	seeds	decoction	oral	sedative, antispasmodic, expectorant, diuretic, galactagogue,
<i>Pistacia vera</i> L.	Pistaciaceae	فستق حليبي	Fustok halabi	branches, fruits	raw, exudation of branch resin, oil	oral, external application	resin: impotency in male, antiseptic, seeds: neuro-stimulant
<i>Plantago lanceolata</i> L.	Plantaginaceae	لسان الحمل	Lesan Alhamal	leaves and fruits	leaves and fruits are crushed and boiled	oral, external application	leaves for constipation, seeds for diarrhea, cancer, antibacterial, wound healing
<i>Poterium spinosum</i> L.	Rosaceae	البلان الشوكي	Ballan	whole plant	decoction	oral	anti-diabetes
<i>Punica granatum</i> L.	Punicaceae	رمان	Rumman	fruits, pericarp, flowers	fruit juice, bark extract	oral, topical application.	malabsorption syndrome, hypocholesteremia, anthelmintic, diarrhea, amebic dysentery, antibacterial, ulcer
<i>Quercus calliprinos</i> Webb.	Fagaceae	بلوط	Ballot	fruits, leaves	leaves and dry fruits are crushed and prepared as tea	oral, external	diabetes, intestinal infections, antiseptic for wounds and burns, hemorrhoids, tonic
<i>Raphanus raphanistrum</i> L.	Cruciferae	فجل بري	Fejel barri	roots	juice	oral, external	diuretic, anti-cancer, rheumatism
<i>Rosmarinus officinalis</i> L.	Lamiaceae	اكليل الجبل	Eklil aljabal	leaves	decoction	oral, external topical application	cognitive booster, influenza, antiseptic, emmenagogue, weight loss, peptic ulcer
<i>Rubus sanguineus</i> Friv.	Rosaceae	عليق (عوسج)	Ullek, ausaj	leaves, buds	leaves and buds are crushed and prepared as tea	oral, mouth wash	diarrhea, antiseptic, influenza, infections of the gastrointestinal system
<i>Salvia sclarea</i> L.	Lamiaceae	ميرامية قلبية	Meiramiea	leaves, seeds,	leaves and seeds are crushed and prepared as tea	oral	weight loss, antitussive, hypoglycemic, expectorant
<i>Silybum marianum</i> (L.) Gaertn.	Asteraceae	شوك مريم	Shauk Mariam	leaves, flowers	leaves and flowers are crushed and prepared as tea	oral	diabetes, hemorrhoids, varicose veins, enhances blood circulation, hepato-stimulant
<i>Sinapis arvensis</i> L.	Cruciferae	خردل بري	Khardal	seeds	raw seeds are sprouted	oral, external	stimulant, diuretic, rheumatism, cancer
<i>Spartium junceum</i> L.	Fabaceae	الوزال	Wazzal	flowering shoots, stems	crushing the dry flowering shoots, decoction	oral	cardio-inotropic, diuretic. uterine stimulant, vaso-constrictor, purgative
<i>Teucrium polium</i> L.	Lamiaceae	جعدة	Gurisa, Jaadeh	aerial parts	aerial parts are crushed and prepared as tea	oral	diabetes, cancer, antispasmodic, stomach hyperacidity
<i>Thymus syriacus</i> Boiss.	Lamiaceae	زعر	Saatar	aerial parts	decoction	oral, external	antitussive, bronchitis, carminative, antispasmodic, infected wounds, epistaxis
<i>Tilia cordata</i> Mill.	Tiliaceae	الزيزفون	Zaizafoon	flowers	decoction, mouth-wash	external (bath), oral	migraine, influenza, antispasmodic, chologogue
<i>Tragopogon pratensis</i> L.	Asteraceae	لحية التيس	Lehiet altais	leaves, roots	decoction, powder	oral, external	gout, hepato-protection, external wound infections
<i>Trigonella foenum-graecum</i> L.	Fabaceae	حلبة	Halbeh	seeds	seeds are ground and boiled	oral, external	diabetes, antitussive, hypercholesteremia, galactagogue bruises,
<i>Trifolium pratense</i> L.	Fabaceae	النفل	Nafal	leaves	leaves are crushed and prepared as decoction	oral	anticoagulant, arthritis, weight loss (appetite enhancer), hepato-secretagogue
<i>Trifolium stellatum</i> L.	Fabaceae	برسيم نجمي، نفل	Barsim	leaves, flowers	dry leaves and flowers are crushed and prepared as tea	oral	anti-cancer, sedative, expectorant
<i>Urginea maritima</i> L.	Liliaceae	بصل العنصل	Ansal	dried bulbs	powder	oral	chronic bronchitis, cardio-inotropic, irritant, emetic, expectorant, vaso-constrictor
<i>Urtica dioica</i> L. and <i>Urtica urens</i> L.	Urticaceae	قراص قراص حارق	Kurras Kurras harek	leaves, roots	decoction, soaking	oral, external	anemia, analgesic, congestive heart failure, benign prostate enlargement (roots), arthritis, diuretic
<i>Viola odorata</i> L.	Violaceae	البنفسج	Banafsaj	flowers, roots	cold or hot aqueous extraction	oral, external	anti-cold, expectorant, antitussive, diuretic, mouth wash, antiseptic
<i>Xanthium strumarium</i> L.	Asteraceae	الحسك الكبير	Hasak	seeds, leaves	decoction, seeds are ground into fine powder	oral	infertility and impotency in males, galactagogue

geography and climate due to the unique location. The area includes about 185,180 square kilometers of Badia (the semi-arid rangelands of the Syrian Arab Republic, known as “Al Badia” in Arabic, and the “Steppe” in English), plains, and mountains. It is divided into a coastal zone, with a narrow, mountain belt in the west, a much larger eastern plateau, Badia, in the south, and rivers crossing the country. Thus the climate of Syria is characterized by a unique combination of Badia and sea.

Syria is known for its wealth of plant species with medicinal properties, which have been used since early times. In fact, more than 3500 species belonging to 131 families have been found in Syria, hundreds of which may have medicinal and therapeutic significance. Throughout ancient times in Syria, as part of Bilad Alsham, and other lands in the region, humans used various natural materials as sources of medicines [3-6]. However, the subject of traditional medicine in Syria has received little attention in

the literature, and very little is known about the traditional medicinal substances used nowadays by the Syrian population to treat the most common diseases. Thus, to date, no articles devoted to traditional medicine of Syria have been published except for one on the use of “Zahraa” and another on the medicinal plants in Golan, which is an occupied Syrian territory [7,8]. For these reasons, the aim of the present investigation was to gather the uses of medicinal plants in the north of Syria, as a foundation for a national survey, and to document the information concerning the uses of medicinal plants, which may serve as the basis of knowledge for a more intensive scientific research. Our study revealed that hundreds of plant species belonging to different families are still used in traditional medicine as herbal remedies for the treatment of the most common diseases. The most important 100 species, based on quotations and frequency of use, are cited in Table 1. Remedies, according to our survey, are administered in forms of a standard decoction prepared by boiling plant

parts in water, in the form of an infusion, juice, raw fruit, oil, ironed material, or by inhalation (plants containing essential oils). The medicinal preparations are administered either orally or externally, according to the preparation method and the disease being treated.

A deep overview of the literature concerning the activity of the cited species was carried out by searching MEDLINE and focused on experimental *in vitro* and *in vivo* studies. Thus, a number of plants included in the present study and reported to be useful in the treatment of diabetes have been shown to have hypoglycemic effects in experimental studies: *Allium cepa*, *A. sativum* [9a], *Citrullus colocynthis* [9b], *Coriandrum sativum* [10,1a], *Trigonella foenum-graecum* [12a-12c], *Teucrium polium* [12d,12e], *Foeniculum vulgare* [12e], *Olea europaea* [13a], *Nigella sativa* [13b], and *Sarcopoterium spinosum* [13c,13d].

Although the current survey documents the prevailing tradition of using herbal medicine in Syria, a considerable number of these plants are commonly used as medicinal plants by people in the neighboring countries, such as Lebanon, Jordan, Palestine, Israel, and Turkey. Good examples of such plants are: *Matricaria aurea*, *Lupinus varius*, *Foeniculum vulgare*, *Lavandula stoechas*, *L. angustifolia*, *Juglandis regia*, and *Micromeria myrtifolia*, which are used for different medical disorders [8, 14a-14h].

Among the plants listed in Table 1, 53 species are used for treating gastrointestinal disorders, 38 species for respiratory system diseases, including asthma, bronchitis and coughing, 34 for treating skin diseases, 21 for treating diabetes, 17 for treating kidney and urinary disorders, 16 for cardiac disorders, 14 for infertility and sexual impotency, 13 for treating liver diseases, 13 for treating several types of cancer, 9 for enhancing breast milk excretion, 8 for weight loss, 5 for reducing cholesterol, and three for weight gain. The majority of the medicinal plants listed in Table 1 are used for more than two diseases, for example *Artemisia herba-alba* is used as an hypotensive, emmenagogue and anthelmintic, as well as for the treatment of eczema. Also, *Eruca sativa* is used for treatment of male impotency, bacterial infections, to enhance hair growth, and as a digestive agent. *Nigella sativa* is used for its expectorant, hypoglycemic, antispasmodic and carminative activity, for the treatment of impotency in male, and to induce hair growth. Other plants used for more than one disease include *Anchusa azurea*, *Tragopogon pratensis*, *Ocimum basilicum*, *Eriobotrya japonica*, *Allium sativum*, and *Convolvulus arvensis* (see Table 1).

To the best of our knowledge, this study is the first ethnobotanical survey of medicinal plants used in northern Syria, in the Aleppo region. This survey demonstrates that traditional medicine is still strong and widely practiced. It is important to extend this inventory to document and restore the use of medicinal plants in other regions of Syria in order not to lose this important heritage by mandatory

intervention by international and regional organizations. In addition, it is important to intensify studies on populations and sustainability of harvesting of medicinal plants, which has the potential to accelerate rural development. In addition, pharmacological, toxicological and phytochemical studies to confirm the safety and effectiveness of the medicinal plants are now being undertaken, but still only a few of the species have been screened. Such comprehensive studies will rationalize the safety and potential efficacy of these medicinal plants and will form the starting point for the design of therapeutic approaches to the common diseases based on the most effective and least toxic products.

Experimental

The study area: The surveys were conducted in the city and villages of the Aleppo (Halab) governorate "Mohaafazah". Aleppo (18500 km²) is located in the northern part of Syria, south of the Turkish border. It consists of a hill known as Aleppo Hill, which extends from Intab hill in the north, to the Hama plains in the south, and from Orontes valley in the west, to the Euphrates Valley and Assham Badia in the east. The elevation within the study area ranges between 750 and 1150 m a.s.l The average yearly rainfall is about 547.5 mm, with a maximum monthly average of 115.9 mm in January and a minimum of 0.0 mm in July and August. The mean annual temperature is 15.1°C, varying between 29.4 °C for the hottest month (August) and 2.3°C for the coldest (January).

Interviews: The survey was conducted during the period 2008/2009. A total of 120 people (medicinal plants users, traditional healers, herbalists and medicinal plant collectors), with ages ranging between 20 and 70 years, were interviewed in the study. Medicinal uses, plant parts used, methods of preparation and ways of administration were ascertained (Table 1). Most of these species grow naturally in the different regions of Syria and are widely used in local traditional medicine. Field information was gathered during semi-structured interviews and questionnaires in homes and/or shops, and transect walks in wild plant medicine collection areas. The interviews were recorded in specially designed forms containing: 1-interviewee's personal information; 2-socio-economic and educational situation; 3-specific use(s) of medicinal plants, part(s) of the plant used, and the method(s) of preparation; and 4-herbal sources of the medicinal plants.

The participants were assured that their responses would be used only for research purposes and that the information given would be treated with uppermost concern and confidentiality. Translations of the local disease names into their English or western-medicine equivalents were provided by Dr Ahmad Jaddouh.

Identification of plant material: Plant voucher specimens were deposited in the Herbarium of the Department of

Botany, University of Aleppo. The identity of each plant species mentioned by the interviewees was verified and confirmed by a professional botanist (Dr Ahmad Jaddouh). A medicinal use was accepted as valid only if it was mentioned by at least 3 independent practitioners. Based on the information collected, plants mentioned by at least 3 independent participants in the treatment of a disease were selected from the synoptic table, which contained a list of

several hundreds of medicinal plants used for various health problems.

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