Egyptian Medicinal Plants and Foods: A Review on Phytostimulants and Diuretic Activity

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Abstract: In modern day to day practice diuretics can be used as a first line therapy in many diseases. Herbal medicines are in great demand in the developed as well as in the developing countries for primary health care because of their wide biological and medicinal activities, higher safety margins and lesser costs. The numerous diuretic plants and foods in Egypt with their active phytoconstituents have been explored. Such plants and foods include Khella (Ammi visnaga, L.), Licorice (Glycyrrhiza glabra), Myrrh (Commiphora myrrha), Barley (Hordeum vulgare), Halfa Bar (Cymbopogon proximus) and Gum Arabic (Acacia senegal). This work may prove a milestone in selection of medicinal plant/foods for carrying their work on the diuretics. Such evidence is needed to provide scientific credence to the folklore use of traditional medicines and even be helpful in the development of future medicines and treatments and treatment guidelines.

Keywords: Phytochemicals, Khella, Licorice, Myrrh, Barley, Halfa Bar, Gum Arabic.

Introduction
The modern pharmacological therapy is costly and associated with multiple side effects resulting in patient non-compliance. Thus there is a need to explore alternative therapies particularly from herbal sources as these are cost effective and possess minimal side effects. Plants produce an amazing amount of complex chemicals we can use as medicines to “curb and cure” disease. Many of authorities and academic centers of research pay more attention towards the area of cancer chemoprevention.
compounds. One of the most impressive findings in the field of chemoprevention is the very large number of compounds that have been demonstrated to prevent the occurrence of cancer. Many of these classes are lies in an enlarged group of compounds called phytochemicals (phyto is Greek for plant). Phytochemicals are the bioactive compounds of plants that do not deliver energy and are not yet classified as essential nutrients but possess healthful properties beyond their use as macronutrients or micronutrients. Plants usually produce such low-molecular-weight ingredients for their protection against pests and diseases, for the regulation of their growth, or as pigments, essence, or odor. Scientists have identified thousands of phytochemicals, including flavonoids, glucosinolates (isothiocyanates and indoles), phenolic acids, phytates, and phytoestrogens (isoflavones and lignans), in vegetables, fruits, grains, legumes, and other plant sources. A vast variety of phytochemicals that are present in the daily human diet have been found to possess substantial antimutagenic and anticarcinogenic properties (Surh, 2002). The chemopreventive effects of the majority of edible phytochemicals are often attributed to their antioxidative or anti-inflammatory activities. Besides the edible chemopreventives in vegetables, fruits, herbs, and spices, some phytochemicals in diverse plants also have other beneficial health effects such as anti-obesity, lipid-lowering antidiabetic and diuretics properties (Surh et al., 2001).

According to our knowledge, the studies regarding the potential effects of natural diet and plant parts as natural diuretics so limited. Therefore, the current review is intended to provide an overview of the current knowledge surrounding the use of plant parts and diets as natural diuretics.

Medicinal herbs are the significant source as Diuretics. Mono and poly-herbal preparations have been used as diuretics. According to one estimate, more than 650 mono and poly-herbal preparations in the form of decoction, tincture, tablets and capsules from more than 75 plants are in clinical use. There exist a large number of studies which supports the diuretic effects of traditional herbal medicines. This article reviews the various herbal plants used traditionally as diuretics and the identification of chemical constituent of the plant promoting diuresis. The present paper also involves various plant drugs and their pharmacological profile which focus on the dose administered, bioactive extract involved in
dieresis mechanism. This work may mark an important milestone for the researchers in the selection of medicinal plant for carrying their work on diuretics.

**Diuretics definition and mechanism of action**

Diuretics are commonly defined as drugs that increase the amount of urine output by the kidneys. These agents augment the renal excretion of sodium and either chloride or bicarbonate primarily, and water excretion secondarily (Barrar, 2003). Diuretics are prescribed for people suffering from edema – accumulation of fluids in the body tissues. People suffering from high blood pressure or heart diseases may be prescribed diuretics. Women suffering from PMS symptoms such as bloating are often advised to take diuretics to rid the body of excess fluid retention. Often diuretics are taken in a bid to lose weight. If taken indiscriminately, diuretics can lead to serious consequences such as dehydration and potassium deficiency (Vivek and Vikrant, 2011). Also, diuretics play an important role in the management of oedema and hypertension. This function is mainly an increase in net negative water and solute balance. The proximal convoluted tubule reabsorsbs about 50-66 % of fluid by both active and passive processes. The thin descending limb of Loop of Henle allows osmotic water abstraction as it is highly permeable to water and impermeable to solutes. The reduced water absorption from the descending limb of Loop of Henle has an important role in overall enhanced condition of diuresis. The thin ascending limb of Loop of Henle is impermeable to water and highly permeable to chloride and sodium therefore diuretics show no effects on it (Kokko, 1984). Therefore, diuretic agents have very wide application in the treatment of various chronic diseases associated with edema. They are generally prescribed for the treatment of hypertension, congestive heart failure, glaucoma, diabetes insipidus and liver ailments (Koushik et al., 2014).

**Phytochemicals and diuretic property**

Phytochemicals are bioactive non-nutrient chemical compounds found in plant foods such as fruits, vegetables, grains, and other plant foods. Phenolic compounds can be further divided into flavonoids (including flavonols, flavones, catechins, flavanones, anthocyanidins,
and isoflavones), phenolic acids, stilbenes, coumarins, and tannins. Many phytochemicals are potent effectors of biologic processes and have the capacity to influence disease risk via several complementary and overlapping mechanisms (Steinmetz and Potter, 1991). On the other hand, WHO, IUCN and WWF, (1993) defined phytochemicals as non-nutritive plant chemicals that have protective or disease preventive properties. Plant produces these chemicals to protect itself but recent research demonstrates that many phytochemicals can protect humans against diseases. There are many phytochemicals in medicinal plant leaves and each works differently. Plant and plant products are being used as a source of medicine since long. According to World Health Organization (WHO) more than 80% of the world’s population, mostly in developing countries depend on traditional plant based medicines for their primary healthcare needs.

Biologically active plant chemicals other than traditional nutrients that have a beneficial effect on human health have been termed phytochemicals (Hasler, 1998). Phytochemicals are naturally occurring, biologically active chemical compounds in plants. In plants, phytochemicals act as a natural defense system for host plants and provide colour, aroma and flavour. Phytochemicals are protective and disease-preventing particularly for some forms of cancer and heart diseases. The most important action of these chemicals with respect to human beings is somewhat similar in that their function as antioxidants that react with the free oxygen molecules or free radicals in our bodies. Free radicals can damage the cells of our bodies and must be removed. The thousands of phytochemicals that have been discovered are grouped based on function and sometimes source. These groupings include the widely studied, flavonoids, phyto-oestrogens, phytosterols and carotenoids. These classes and others can be further divided into subclasses such as described in Figure (1).

Wide ranges of phytoconstituents were responsible for diuretic activity includes alkaloids, glycosides, tannins, phenolics coumarins, triterpenoids etc. These phytoconstituents present in plant exert desired pharmacological effect on body and thus act as natural diuretic. These phytoconstituents present in plant exert desired pharmacological effect on body and thus act as natural diuretic. Phenolics (flavanoids and tannins) of Terminalia arjuna, Acacia suma, Camellia sinensis, Cuscuta
reflexa, Mimusops elengi, Mimosa pudica Linn alkaloids of Aerva lanata, Erythrina indica, Cordia rothii, Azima tetracantha; coumarins of Daucus carota; triterpenes of Taraxacum officinale, Abutilon indicum; saponins of Asparagus racemosus, Tribulus terrestris; sesquiterpenes lactones of Taraxacum officinale; glycosides of Opuntia ficus indica, Moringa oleifera might be involved in the mechanism of diuretic activity (Khare, 2007 Wright et al., 2007; Sangmai et al., 2010 and Vivek and Vikrant, 2011). Natural Diuretics acts by increasing the urine output as well as urinary electrolyte concentration. Lepidium sativum, Costus speciosus, Phyla nodiflora, Withania coagulans, Tylophora indica, Thespiesia populnea, Phyllanthus fraternus, Mimosa pudica, Allium sativum increases the sodium and potassium ion concentration in urine. Spilanthes acmella, Tribulus alatus acts as loop diuretics and Rungia repens might causes risk of hypokalemia due to increase in potassium level in urine (Pantoja et al., 2000; Nadkarni and Nadkarni, 2005 and Khare, 2007).
Phytochemistry and pharmacological activities of diuretics Egyptian plant/food

Plant parts such medicinal herbs/spiced and diets are the significant source of diuretics. Mono and poly-herbal preparations have been used as diuretics. Such as mentioned by many authors, more than 700 mono and poly-herbal preparations in the form of decoction, tincture, tablets and capsules from more than 75 plants or more are in clinical use (Nadkarni and Nadkarni, 2005; Khare, 2007 and Vivek and Vikrant, 2011). In Egypt, plant parts and diets used as a diuretic has been used for a long time and has been popularized world over by leading pharmaceuticals. Plant medicine was commonly used for traditional treatment of some renal diseases and a lot of plants have been reported to show significant diuretic activity (Ammar, 2011; Monsef, 2015 and Badr, 2015). In the next part we will reviewed here some Egyptian plant parts/diets and their phytochemical constituents as well as remarkable diuretic activity.

Parsley

Parsley (Petroselinum crispum Family Apiaceae)

Garden Parsley is a bright green hairless biennial herbaceous plant. In the first year, it forms rosette of tripinnate leaves 10–25 cm long with numerous 1–3 cm leaflets, and a tap root used as a food store over the winter. In the second year it grows a flowering stem to 75 cm tall with sparser leaves and flat-topped 3–10 cm diameter umbels with numerous 2 mm diameter yellow to yellowish-green flowers. The seeds are ovoid, 2–3 mm long, with prominent style remnants at the apex. The plant normally dies after seed maturation (Huxley, 1992). Parsley phytochemical composition include flavonoid apiin, essential oil apiol, coumarins, terpenes, phthalides (ligustilide, senkyunolide), mucilage,
resin, starch, iron, calcium, phosphorus, manganese, inositol, sulfur, vitamins C and K, and beta-carotene (Blumenthal et al., 2000). Parsley diuretic effect was reported by Ahsan et al., (1990) who found that significant inhibitory effect of parsley on experimentally induced kidney stone and diuretic in laboratory animals. The use of parsley root and herb as a diuretic in disorders of the urinary tract and for the prevention and therapy of renal gravel is recommended (Blumenthal, 1998). Aquaretics herbs include dandelion (especially the leaf), asparagus root, parsley, juniper and horsetail have potential for the treatment of excessive weight, hypertension, congestive heart failure, diuretic, kidney stones and premenstrual syndrome (Szentmihlyi et al., 1998). The leaves, roots and seeds of parsley are diuretic, reduce the release of histamines and scavenge skin aging free radicals (Richmond and Mackley, 2000). Parsley, due to its constituents apiol and myristicin, is believed to have a diuretic effect because diuretics would increase the flow of urine, this might help the body to wash out bacteria as well as stones (Kreydiyyeh and Usta, 2002). Medical uses of parsley are spasmylytic, diuretic, emmenagogue, expectorant, antirheumatic and antimicrobial properties (Barnes et al., 2002). The volatile oil of parsley shows a diuretic effect. A diuretic and spasmylytic activity is also postulated for the flavonoids (Teuscher, 2003). The diuretic effect of parsley leaf and root is due to its volatile oil components myristicin and apiol (Bagnis et al., 2004). Parsley has carminative, tonic and aperient action, but is chiefly used for its diuretic properties, a strong decoction of the root being of great service in gravel, stone, congestion of the kidneys, dropsy and jaundice (Duke et al., 2009).

Khella

Khella is an annual Mediterranean herb, which grows wild from Morocco to the Near East. Leaves are up to 20 centimeters long and generally oval to triangular in shape but dissected into many small linear to lance-shaped segments. The inflorescence is a compound umbel of white flowers similar to those of other Apiaceae species. The fruit is a compressed oval-shaped body less than 3 millimeters long (Khan et al., 2001).
Khella (Ammi visnaga L. family Apiaceae)

Khella phytochemical composition include fruranochromones (-py-ones): 2-4% comprising khellin (0.3-1.2%), visnagin (0.05-0.3), khellol and its glucoside, khellenin, khellinol, ammiol and its glucoside, visammiol, khellinone, visnaginone; pyranocoumarines (visnagans): 0.2-0.5% comprising visnadin, samidin and dihydrosamidin, Furanocumarines: traces of xanthotoxin and ammoidin, flavonoids: 0.02-0.03% comprising quercetin and isorhamnetin and their 3-sulphates as well as kaempferol, volatiles: camphor, carvone, (-terpineol, terpinen-4-ol, linalool, cis and trans linalool oxides), fixed oil: 12-18% (Dan and Yves, 2001). Khella is used for colic and abdominal cramps, kidney stones, diuretic, menstrual pain, and premenstrual syndrome (PMS). Khellin in khella is used in the treatment of coronary insufficiency, angina pectoris, diuretic, bronchial asthma, vitiligo and psoriasis, and for the removal of small bladder and kidney stones (Batanouny et al., 1999). Khella extract has prophylactic effect in oxalate stone formation, its diuretic effect in rats and on human volunteers, and also in vitro experiment, emphasizes its solubilizing properties on calcium oxalate (Zulfiqar et al., 2001). Medicinal uses of Ammi Visnaga treat angina pectoris, kidney stones, asthma, diuretic, allergies, and also dental hygiene (Markvardsen et al., 2001). Khella used for Kidney stones, Diuretic, Renal colic, Asthma, Carminative, Antispasmodic, Anti-psoriasis (Nidal, 2005).

Licorice
The licorice shrub is grown in subtropical climates in rich soil to a height of four or five feet. It has oval leaflets, white to purplish flower clusters, and flat pods. Below ground, the licorice plant has an extensive root system with a main taproot and numerous runners. The main taproot, which is harvested for medicinal use, is soft, fibrous, and has a bright yellow interior (Olukoga and Donaldson, 1998). A number of components have been isolated from licorice, including a water-soluble, biologically active complex that accounts for 40-50 percent of total dry material weight. This complex is composed of triterpene saponins, flavonoids, polysaccharides, pectins, simple sugars, amino acids, mineral salts, and various other substances Glycyrrhizin, a triterpenoid compound, accounts for the sweet taste of licorice root. This compound represents a mixture of potassium-calcium-magnesium salts of glycyrrhizic acid that varies within a 2-25 percent range. Among the natural saponins, glycyrrhizic acid is a molecule composed of a hydrophilic part, two molecules of glucuronic acid, and a hydrophobic fragment, glycyrrhetic acid (Obolentseva et al., 1999). The yellow color of licorice is due to the flavonoid content of the plant, which includes liquiritin, isoliquiritin (a chalcone), and other compounds. The isoflavones glabridin and hispaglabridins A and B have significant antioxidant activity, (Vaya et al., 1997) and both glabridin and glabrene possess estrogen-like activity (Tamir et al., 2001). The dried root of licorice is taken orally as a diuretic, depurative and emollient (Novaretti, and Lemordan, 1990). Also, Ross, (2001) said that licorice use for Bladder and kidney pain, kidney stones, diuretic. Glycyrrhiza glabra are commonly used as a diuretic, sedative and refrigerant, and its fruits are considered to be an anti-scrobutic. Its calyces are commonly
prepared as a drink and used as a mild diuretic, a colorectal, an intestinal anti-septic, a mild laxative, as an aid in heart and nerve conditions, to lower blood pressure and to treat calcified arteries (Ajay et al., 2007). Finally, licorice can increase the effects of potassium depleting diuretics whereas deglycyrrhizinated licorice (DGL) can be used safely with any diuretic (Dorothea, 2008).

**Myrrh**

Myrrh and the similar but lower quality opopanax are the hardened, resinous exudates obtained from trees of certain Commiphora species of the Burseraceae family. Commiphora species are small trees or shrubs with short, thorny branches (Lumir et al., 2005). Myrrh is oleo-gum resin exudates obtained from several species in the genus Commiphora. It contains Ca. 57–61% water-soluble gum, 7–17% volatile oils, and 25–40% alcohol-soluble resins and 3–4% impurities (Massoud et al., 2001). The alcohol-soluble resins of myrrh consist of commiphoric acids, commiphorinic acid, heeraboresene, heerabomyyrhols, and commiferin. Furthermore, the resins were found to contain α-, β-, and γ-commiphoric acids, commiphorinic acid, α- and β-heerabomyyrhols, heerboresene, commiferin, kertosteroids, compesterol, β-sitosterol, cholesterol, α-amyrone and 3-epi-α-amyrin (Rao et al., 2001). The leaves and flowers of Myrrh were used by local Arab populations as analgesic, laxative and diuretic agents (Abdul-Ghani and Amin, 1997). Cinnamon, ginger and myrrh used for antispasmodics, uterine cramps: diuretic (Swami, 2007).
Barley

Barley (Hordeum Vulgare, Family: Poaceae)

Barley belongs to the genus *Hordeum* in the tribe Triticeae of the grass family, Poaceae. The Triticeae tribe is a temperate plant group containing several economically important cereals and forages as well as about 350 wild species. The genus *Hordeum* is unusual among the Triticeae as it contains both annual species, such as *H. Vulgare* and *H. marinum*, and perennial species, such as *H. bulbosum* (Von and Bothmer, 1992). Barley is an excellent source of dietary fibre, protein, and complex carbohydrates, and is a good source of certain vitamins. Barley composition varies markedly in different environments and between varieties. The concentration of starch is inversely related to the content of total dietary fibre and protein. In malting barley, lower protein content (8-10.5% dry matter) and corresponding high starch content is preferred. In feed barley, grains with low fibre, higher protein (10-15%) and higher starch content are preferred carbohydrates, including starches, sugars and non-starch polysaccharides, comprise about 80% of the barley grain (Newman and Newman, 1992). Most of the carbohydrates is starch, which makes up 60% of the grain and provides energy for germination (OECD, 2004). Starch is the major source of readily available energy for food and feed. In most barleys, the predominant starch is amylopectin and the reminder is amylace (Newman & Newman, 1992). The non-starch polysaccharides are collectively called total dietary fibre and include β-glucans and arabinoxylans. The fibre content of barley is relatively high, and the benefits of dietary fibre on human health are well known (McIntosh et
al., 1991 and OECD 2004). Barley contains a number of other compounds, some of which may have a role in protection against diseases when ingested at high levels. These include simple phenolic acids, flavonoids and lignans, all of which have good antioxidant properties (OECD, 2004). Therapeutic uses of barley are Hypoglycemic, Diuretic and Renal calculi (Nidal, 2005). Also, Swami, (2007) said that Barley action: Diuretic, Antirheumatic and demulcent. Furthermore, reported that Talbina which is formed by adding milk and honey to the dried barley powder could be very nutritious, beneficial in coughs and inflammation of the stomach and to have the ability to expel toxins from the body and act good diuretic.

Halfa Bar

Halfa Bar (Cymbopogon proximus), Family: Poaceae

Halfa Bar (Cymbopogon proximus), is a common weed with strong aromatic odour grows in southern Egypt and Northern parts of Sudan (Boulos, 1999). Main compounds in cymbogon Proximus are proximadiol, 5α-hydroxy-β-eudesmol, 1β-hydroxy-β-eudesmol and 1β-hydroxy-α-eudesmol, two new sesquiterpenes, 5α-hydroperoxy-β-eudesmol and 7α,11-dihydroxycadin-10(14)-ene were isolated from the unsaponifiable fraction of the petroleum ether extract of Cymbopogon proximus. Isolation of compounds 2, 4 and 5 from the genus Cymbopogon is reported for the first time (El-Askary et al., 2003). In Egypt, Halfa Bar is widely grows in southern Egypt, the plant is widely used in the folk medicine as an effective renal antispasmodic and diuretic (Batanouny et al., 1999).
Sage (Salvia officinalis, L, Family: Lamiaceae)

Sage is a native of the northern Mediterranean coast but it is cultivated in many countries. The species shows a great deal of structural variation: narrow-leaved sage produces flowers but broad-leaved sage often does not flower. Sage is a low-growing shrub (up to 45 cm in height). It has lanceolate to ovate, long-stalked leaves, sometimes lobed at the base, up to 15 cm in length and either green and rather hairy, or greyish green when densely hairy. The surface is wrinkled and the margin crenulate. The pink or bluish-lilac flowers are borne in distant whorls on erect inflorescences. The corolla is two-lipped, the upper lip hood-like, the lower lobed. There are only two fertile stamens (Vaughan and Geissler, 2009). Phytochemical constituents of sage was studied by Paula et al., (2002) who found that the identified compound from (Salvia officinalis, L.) extract can be grouped into three classes of phenolic compounds as follow: 1) phenolic acids: gallic acid, 3-O-cafeoylquinic acid, 5-O-cafeoylquinic acid, caffeic acid, and rosmarinic acid, 2) flavonoids: hesperetin, apigenin, hispidulin, cirsimaritin and genkwanin., and Phenolic diterpenes: carnosic acid, rosmadial, methyl carnosate, epirosorosmanol ethyl ether, epirosmanol methyl ether, carnosol and epirosmanol. Rosmarinic acid which was the major phenolic compound in two of the eight different Sage extracts was absent in other five ones. Sage the Romans, used as a diuretic, a local anesthetic for the skin, a styptic, and for other uses (Kintzios, 2000). Sage is also used usually for medicine to several aims such as carminative, diuretic, antihidrotic, antihistaminic, analgesic and expectorant (Filiz and Nuran, 2002). Investigations of the biological
activities of the mono- and sesquiterpenes have proved so far the following effects: anesthetic, antihistaminic, antirheumatic, diuretic, expectorant, insecticidal, purgative (monoterpenes); analgetic, antiarhythmic, antiepileptic, spasmolytic, toxical (sesquiterpenes); anthelmintic, antibiotal, anti-inflammatory, antitumorous, hypotensive, irritative and sedative (mono- and sesquiterpenes) (Velickovic et al., 2002). For hundreds of years, Salvia species have been used as traditional medicinal plants because of their sedative, antiseptic, antispasmodic, anti-inflammatory, and diuretic properties (Ömer et al., 2006).

**Gum arabic (GA)**

Gum Arabic (GA) or Acacia gum is an edible biopolymer obtained as exudates of mature trees of *Acacia senegal* and *Acacia seyal* which grow principally in the African region of Sahe in Sudan. The exudate is a non-viscous liquid, rich in soluble fibers, and its emanation from the stems and branches usually occurs under stress conditions such as drought, poor soil fertility, and injury (Williams and Phillips, 2000). Such as reported by MSN (2008) there are close to 900 *Acacia* species capable of producing gum. These are primarily located in tropical climates, with about 130 of them located specifically on the African continent. Africa, therefore, quickly became the major site of the production of gum; this is the reason why it is also referred to as ‘Senegal Gum’. Gum is essentially the secretion of several acacia (leguminous) trees. Acacia Gum species, of which there are up to
seventeen, produce acacia gum of varying quality and quantity. Interestingly, close to 80% of Gum Arabic is produced by the Acacia senegal (in Sudan). The remainder is produced either by the Acacia laeta or the Acacia seyal, with each species contributing 10% to the total supply of gum. The gum produced by the Acacia senegal is commonly referred to as “hard gum” and the gum from Acacia seyal, as “flaky gum”. Europe and U.S. are the most important GA markets importing 40 kTn/year, on average, while Japan, the largest Asian consumer, imports about 2 kTn/year. Structurally, GA is a neutral or slightly acidic salt of a complex polysaccharide composed of galactose, arabinose, rhamnose, glucuronic acid, 4-O-methylglucuronic acid, calcium, magnesium, and potassium. The molecular weight has been reported to be 600,000 (Anderson and Dea, 1971). Gum arabic is distinguished from other gums by its high solubility in water; 50% solutions can be prepared, compared with maximum concentrations of 5% or less for most other gums (Furia, 1972). In the last two decades, several investigations have been conducted in order to reveal the molecular structure of GA and relate it to its exceptional emulsifying and rheological properties. The chemical composition of GA is complex and consists of a group of macromolecules characterized by a high proportion of carbohydrates (~97%), which are predominantly composed of D-galactose and L-arabinose units and a low proportion of proteins (<3%) (Islam et al., 1997 and Mohamed, 2013). The chemical composition of GA may vary slightly depending on its origin, climate, harvest season, tree age and processing conditions, such as spray dying (Al-Assaf et al., 2005 (a,b); Flindt et al., 2005; Hassan et al., 2005 and Siddig et al., 2005). Gum Arabic (GA) or Acacia gum is an edible biopolymer obtained as exudates of mature trees of Acacia senegal and Acacia seyal which grow principally in the African region of Sahe in Sudan. The effective biological role of GA has confirmed in the last twenty years including reduction in plasma cholesterol level in animals and humans (Sharma, 1985 and Tiss et al., 2001), anticarcinogenic effect (Nasir et al., 2010) and antioxidiant effect (Ali et al., 2003; Trommer and Neubert, 2005 and Ali and AlMoundhri, 2006) with a protective role against hepatic and cardiac toxicities. In addition to that, it has been claimed that GA alleviates effects of chronic renal failure in humans (Matsumoto et al.,
2006; Ali, 2004; Ali et al., 2008; Glover et al., 2009 and Ali et al., 2010).

Conclusion

The current review projected to provide an overview of knowledge adjoining the herbal medicines used as diuretics in Egypt. By this review, it can be concluded that in the core of the nature there are so many plants and diets which possess potent diuretic activity. Herbal medications and natural foods are free from side effects and toxicity unlike the allopathic medicines. Further studied are needed to investigate which components are responsible for the diuretic effects exhibited by the Egyptian plants and foods. Explanation of their mode/mechanism of actions is also needed.

References


النباتات الطبية والأغذية المصرية: دراسة مزجعية على المكونات النباتية والنشاط المخزج للماء من الجسم

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الملخص العربي:
في الأيام الحالية تمثل المواد ذات القدرة على إخراج الماء من الجسم الخط الأول في علاج العديد من الأمراض. كما أن النباتات الطبية في البلاد النامية وغير النامية إهتماماً خاصاً لما تتصف به من أنشطة بيئة وطبية وأوجه الأمان في الاستخدام وانخفاض ثمنها. وعلى وجه الخصوص لأقت النباتات والأغذية التي تتصف بقدرها على إخراج الماء من الجسم في مصر إهتماماً كبيراً ومنها الجلدة، العرق، سوس، المر، الحلفاء، الشعر، الصمغ العربي وغيرها. ونظراً لنقص المعلومات المتعلقة بهذا الجانب فإن الدراسة الحالية تهدف إلى توضيح تأثير بعض المكونات النباتية الطبيعية الموجودة بتلك النباتات وفشتها بعض الأليات المتعلقة بهذا الخصوص لتكون حجر الزاوية لتوسيع قاعدة الاستفادة من تلك النباتات ولتكون عوضاً عن البديل الكيميائي ذات الآثار الجانبية العديدة.

الكلمات المفتاحية: النباتات الطبية، الأغذية، العرق، سوس، المر، الحلفاء، الشعر، الصمغ العربي