Some Egyptian Medicinal Plants and Heart, and Blood Disease

Mohammed Sayed Aly Mohammed

ABSTRACT

Many medicinal plants have a significant effect upon the diseases, such as diabetes, skin, liver cancer, heart, respiratory, blood, and nervous system. Medicinal plants in Egypt contain a high concentration of secondary metabolites, according to suitable environmental conditions. The ancient Egyptians had written a lot of information about medicinal plants, their uses, and many drugs of these medicinal plants still used in medicine. Many medicinal plants are cleared on the wall of temples and in the papyri, famous Ebers papyrus that is written in 1550 B.C. cardiovascular diseases (CVD) defined according to the World Health Organization (WHO) as a defect of the circulatory system including heart and blood vessels. There are many types of CVD such as coronary heart disease (CHD), cerebrovascular disease, heart attacks, and strokes. The deposition of fatty substances, cellular waste, cholesterol, and other substances on the inner walls of blood vessels is the major cause of CVD, World Health Organization (2014). The aim of the present study is to clarify some Egyptian medicinal plants for heart and blood diseases such as Tropaeolum majus L. Uriginea maritima (L.), Salvia Species, Allium cepa and Allium sativum. The location, chemical components, active ingredients, and position of the effect of previous plants.

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Many medicinal plants have a significant effect upon the diseases, such as diabetes, skin, liver cancer, heart, respiratory, blood, and nervous system. Medicinal plants in Egypt contain a high concentration of secondary metabolites, according to suitable environmental conditions. The ancient Egyptians had written a lot of information about medicinal plants, their uses, and many drugs of these medicinal plants still used in medicine. Many medicinal plants are cleared on the wall of temples and in the papyri, famous Ebers papyrus that is written in 1550 B.C. cardiovascular diseases (CVD) defined according to the World Health Organization (WHO) as a defect of the circulatory system including heart and blood vessels. There are many types of CVD such as coronary heart disease (CHD), cerebrovascular disease, heart attacks, and strokes. The deposition of fatty substances, cellular waste, cholesterol, and other substances on the inner walls of blood vessels is the major cause of CVD, World Health Organization (2014). The aim of the present study is to clarify some Egyptian medicinal plants for heart and blood diseases such as Tropaeolum majus L. Uriginea maritima (L.), Salvia Species, Allium cepa and Allium sativum. The location, chemical components, active ingredients, and position of the effect of previous plants.

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I. INTRODUCTION

Traditional medicinal plants definite a Phyto-remedies, their use still burgeoning worldwide, the medicinal plants are used as a herbal for recovery to many diseases, and of their constituents now used in very most beige scale to cure of many diseases such as diabetes2, skin, liver, cancer and heart disease too. Drugs of herbal or their derivatives are considered natural products that mostly have not no side effects.

Medicinal plants contain many compounds, which have an excellent effect on remedies for many diseases, such as essential oils that are used as a sedative, skin diseases, relaxing, and so on.

Phenols and flavonoids that are used as an antioxidant that prevents cancer, glyoxidates that have a good effect upon heart disease such as quercetin of onion, scillaren of white squill, allyl of garlic and so on of the contents of medicinal plants that the spot will be light on their active ingredients for heart disease in the present work.

The heart attack returns to the of heart muscle, then the coronary artery is blocked, that supplies blood to the heart, that due to damage of heart muscle sustenance, and cause that blood is not arrived to it, so it becomes starved of Oxygen.

Systolic heart failure done, because the heart muscle could not push blood around all the body properly. At the time of the heart and blood circulation both stop cardiac arrest, so a person's life will end.

The factors that cause heart failure are type 2 diabetes, smoking, anemia, obesity, lupus, thyroid problems, includes hyperthyroidism and hypothyroidism, inflammation of heart muscle that returns to the virus, and could drive to failure of the left side of heart. Abnormal heart rhythms and fast heartbeat could cause heart weakness, and so on a slow heartbeat due to reduced blood flow, which leads to heart failure.

Dietary factors are very close to heart coronary, particularly when dietary contains the greatest

ratio of saturated fatty acids, Coronary heart disease is considered number one that causes death in the world. However, it must be said that most people survive their first heart attack and return to their normal lives, enjoying many more years of productive activity. But experiencing a heart attack does mean that you need to make some changes.

Garlic (Allium Sativum)

Garlic is a perennial plant; it has been valued for its medicinal properties. As an herbal medicine, it has been more closely examined than many other herbs. Research focuses on garlic for preventing atherosclerosis. Multiple beneficial cardiovascular effects were found, including lowering of blood pressure, inhibition of platelet aggregation, enhancement of fibrinolytic activity, lowering of cholesterol and triglyceride levels, and protection of the elastic properties of the aorta (Rahman and Lowe 2006).

The intact cells of garlic bulbs contain an odorless sulfur-containing amino acid, allinin. When garlic is crushed, allinin is exposed to alliinase, which converts allinin to allicin. This has potent antibacterial properties and is highly odoriferous and unstable. Ajoenes are the self-condensation products of allicin and suggested to be responsible for garlic's antithrombotic action. Most authorities now agree that allicin and its derivatives are the bioactive constituents of garlic.

Dried garlic preparations lack allicin but contain both allinin and allinase. Since allinase inactivated in the stomach, dried garlic preparations should have an enteric coating so that they pass unaltered through the stomach to the small intestine, where allinin enzymatically converted to allicin. Only a few commercially available garlic preparations standardized for their yield of allicin based on the allinin content (Mashour, Lin, and Frishman 1998).

The consumption of large quantities of fresh garlic (0.25-1.0 g/kg or about 5-20 average-sized 4 g cloves) found to produce the aforementioned beneficial effects (Kleijnen, Knipschild, and ter Riet 1989). In support of this, a double-blind, crossover study of moderately hypercholesterolemic men, which compared the effects of 7.2 g of aged garlic extract with placebo on blood lipid levels, found a maximal decrease of 6.1% in total serum cholesterol levels and 4.6% in LDL cholesterol levels with garlic (Steiner et al. 1996).

However, despite the positive evidence from a number of trials, full endorsement of garlic for CVD prevention is not currently possible. Many published studies have methodological shortcomings (Isaacsohn et al. 1998). Trials were small, lacked statistical power, had inappropriate methods of randomization, lacked dietary run-in periods, were of short duration, or failed to undertake intention to treat analysis. This has led to a cautious approach to previous meta-analyses (Neil et al. 1996). One more recent meta-analysis concludes that garlic decreases total cholesterol to a modest extent, an effect driven mostly by the modest decreases in triglycerides, with no appreciable effect on LDL or HDL cholesterol (Reinhart et al. 2009).

Garlic studied hypertension with no conclusive result (Simons, Wollersheim, and Thien 2009). A meta-analysis of eight trials suggested some clinical value in patients with mild hypertension, but the evidence was insufficient to recommend garlic for routine clinical therapy (Silagy and Neil 1994). Garlic reported to show antiplatelet stickiness activity. This has been documented in vitro (Bordia, Verma, and Srivastava 1996), and another study examined the effect of consuming a clove of fresh garlic on platelet thromboxane production. After 26 weeks, serum thromboxane levels lowered by about 80% (Ali and Thomson 1995). In these ways, garlic is beneficial to cardiovascular health, and these effects need further study. However, with consumption of more than five cloves daily, heartburn, flatulence, and other gastrointestinal disturbances reported.

Allergic contact dermatitis is also reported, and patch testing is available when garlic allergy suspected (Delaney and Donnelly 1996). Due to its antithrombotic activity, garlic is taken with caution by people on oral anticoagulants (Rose et al. 1990).

Onion (Allium cepa L.)

The onion (*Allium cepa* L.), is known as the bulb onion or common onion, onions are cultivated and used around the world. Most onion cultivars are about 89% water, 9% carbohydrates (including 4% sugar and 2% dietary fiber), 1% protein, and negligible fat (table). Onions contain low amounts of essential nutrients and have an energy value of 166 kJ (40 Calories) in a 100 g (3.5 oz.) amount. Onions contribute savory flavor to dishes without contributing significant caloric content (US National Onion Association, 2011)

Considerable differences exist between onion varieties in phytochemical content, particularly for polyphenols, with shallots having the highest level, six times the amount found in Vidalia onions. Yellow onions have the highest total flavonoid content, an amount 11 times higher than in white onions *(*Slimestad, et al., 2007), they added that red onions have considerable content of anthocyanin pigments, with at least 25 different compounds identified representing 10% of total flavonoid content.

Allium cepa is highly valued for its therapeutic properties. It was used as a food remedy from time immemorial. Research shows that onions may help guard against many chronic diseases. That is probably because onions contain generous amounts of the flavonoid quercetin. Studies have shown that quercetin protects against cataracts, cardiovascular disease, and cancer. In addition, onions contain a variety of other naturally occurring chemicals known as organosulfur com-pounds, which, linked to lowering blood pressure and cholesterol levels. Although rarely used specifically as a medicinal herb, the onion has a wide range of beneficial actions on the body and when eaten (especially raw) on a regular basis will promote the general health of the body. The bulb is anthelmintic, anti-inflammatory, antiseptic, antispasmodic, carminative, diuretic, expectorant, febrifuge, hypoglycaemic, hypotensive, lithontripic, stomachic and tonic.

When used regularly in the diet it offsets tendencies towards angina, arteriosclerosis and heart attack. This is used particularly in the treatment of people whose symptoms include running eyes and nose. The onions ability to relieve congestions especially in the lungs and bronchial tract is hard to believe until you have actually witnessed the results. The drawing of infection, congestion and colds out of the ear is also remarkable. The onion will relieve stomach upset and other gastrointestinal disorders and it will strengthen the appetite. Pharmacologically known as *Allium cepa*, onion found in every household. The purple-skinned onion tastes great.

Additionally, it has several health benefits and is part of many home remedies and beauty solutions.

Onion possesses properties allied to those of garlic, but in a milder degree, and the absorption of its oil and influence upon the system is somewhat similar to that of the oil of garlic.

Onions do not agree with all persons, especially dyspeptics, in whom they favor the production of flatus, which, however, is a common symptom among all those who eat largely of them; boiling, in a great measure, deprives them of this property. Sugar and onion-juice form a syrup, much used in domestic practice, for *cough* and other affections of the air-tubes among children. A roasted

Onion employed as a cataplasm to support tumors, or to the ear in *otitis* has proved beneficial. A saturated tincture of onions made with good Holland gin, found serviceable in *gravel* and dropsically affections. A cataplasm of onions pounded with vinegar, applied for a number of days, and changed 3 times a day, has been found to cure corn and bunions. Most human studies that have shown an effect from onions used at least 25 grams per day and often two to four times that amount. Though some studies have found cooked onions acceptable, several studies suggest that onion constituents degrade by cooking and that fresh or raw onions are probably most active. If a tincture, syrup, or oil extract is used, 1 tablespoon three times per day may be necessary for several months before effects are noted.

Due to the anti-inflammatory agents in onions they help reduce the severity of symptoms associated with conditions such as the pain and swelling of the osteo and rheumatoid arthritis, the allergic inflammatory response of asthma, and the respiratory congestion associated with common colds. The onions have anti-inflammatory effects only due to their vitamin C and quercetin, but other active components called isothiocyanates have made onions a good ingredient for soups and stews during cold and flu season. WHO recommends the use of fresh onion extracts for treating coughs, colds, asthma, bronchitis and relieving hoarseness. The World Health Organization also supports the use of onions for the treatment of appetite loss and preventing atherosclerosis. Similar to garlic, the regular consumption of onion lowers blood pressure and the serum levels of cholesterol and triglyceride, while increasing HDL levels. As a result, it prevents atherosclerosis and diabetic heart disease, and reduces the risk of heart attacks or strokes. Onions considered as one of the small number of vegetables, which reduce heart disease risk. This beneficial effect attributed to its vitamin B6, which lowers homocysteine levels, an important risk factor for heart attacks and strokes. Onions are natural anti-clotting agents due to their sulfur content. In ancient Greece, large quantities of onion consumed in order to lighten the balance of blood. The high amount of fructo oligosaccharide in onions stimulates the growth of healthy bacteria and suppresses the potentially harmful bacteria in the colon such as Bacillus subtilis, Salmonella, and E. coli. Sulfides in onion extracts provide protection against tumor growth especially stomach and colon cancer.

Roasted onions are good for earaches. They also recommended treating headaches, snakebites, hair loss and infertility in women. In many parts of the world, onions used to heal blisters and boils. Products containing onion extract (such as Mederma) used to treat scars; they also relieve itching secondary to allergy. In homeopathy, *Allium cepa* used for rhinorrhea and hay fever.

Onions believed to be effective in diabetes. Its Allyl propyl disulfide and chromium can decrease fasting blood glucose levels, improve glucose tolerance, and lower insulin levels. Onions may be especially beneficial for women, who are at creased risk of osteoporosis during the menopause. Onion's gamma-L-glutamyl-trans-S-1-propenyl-L-cysteine sulfoxide (GPCS) inhibits the osteoclasts (the cells which break down bone) activity and fights osteoporosis. Onion syrup is useful in extracting renal stones. Onions are also a recommended treatment for edema due to their diuretic effect. They also promote the menstrual periods.

Salvia species

The genus Salvia (sage) belongs to the Lamiaceae and encompasses 900 species worldwide of which ca. 26 indigenous species found in Africa. Salvia is the largest genus in this family and constitutes almost one quarter of the Lamiaceae. Salvia species used in many parts of the world to treat various conditions. Many sages, if not all, form an integral part of traditional healing in Africa, particularly in Sinea where they occur in abundance. Several species used to treat microbial infections, cancer, malaria, inflammation, loss of memory and to disinfect homes after sickness.

The composition of the oils from leaves and flowers of three Salvia species (S. aethiopis L., S. hypoleuca Benth. and S. multicaulis Vahl.) has been analyzed by a combination of GC and GC–MS. During the flowering period, two oils (S. aethiopis and S. hypoleuca) consisted mainly of sesquiterpenes, while in S. multicaulis oil mono-terpenes predominated over sesquiterpenes. The major components of the oil of S. aethiopis were β-caryophyllene (24.6%), α-copaene (15.5%) and germacrene D (13.5%). In the oil of S. hypoleuca, β-caryophyllene (22.0%), δ-elemene (15.5%) and bicyclogermacrene (15.1%) were found to be the major constituents. α-Pinene (26.0%), 1,8-cineole +limonene (20.0%) and camphor (19.0%) were the predominant compounds in the oil of S. multicaulis.

Ten phenolic compounds were isolated from butanol fraction of sage extracts, and their structures were determined with spectral methods (NMR, MS, IR), among them a novel compound,

4-hydroxyacetophenone-4-o-β-D-apiofuranosyl-(1 ___6)-o-β-D-glucopyranoside, was identified.

The rosmarinic acid and luteolin-7-o-β- glucopyranoside were the active compounds of antioxidantactivity.

The metabolite profile of S. miltiorrhiza (SM) or Chinese sage is similar to that of common sage, and recently, it was shown that an extract of SM was able to lower the plasma cholesterol, low density lipoprotein (LDL), and triglycerides (TGs), as well as increase the high density lipoprotein (HDL) levels in lipidemic rats (Christensen, et al., 2010).

The extract of S. officinalis is found to activate peroxisome proliferator-activated receptor gamma (PPARγ) which is a regulator of genes involved in energy spending as well as lipid and glucose metabolism, and its activation improves the HDL/LDL ratio and lowers TGs in serum, reduces insulin resistance, and reduces the size of adipose (fat) tissue (Christensen, et al., 2010). Extracts from some sage species shown to be effective in the prevention of cardiovascular disease due to, at least in part, prevention of LDL-cholesterol oxidation (Ramos, et al., 2009).

Tropaeolum majus

The garden nasturtium (*Tropaeolum majus* L.) belongs to the family Tropaeolaceae. Native to South America it brought to Europe in the XVI century. It is a plant with numerous healing properties. Medicinal plants such as the garden nasturtium contain trace elements and bioactive compounds, which easily absorbed by the human body. The flowers and other parts of the garden nasturtium are a good source of microelements such as potassium, phosphorus, calcium and magnesium, and macro elements, especially of zinc, copper and iron. The essential oil, the extract from the flowers and leaves, and the compounds isolated from these elements have antimicrobial, antifungal, hypotensive, expectorant and anticancer effects. Antioxidant activity of extracts from garden nasturtium is an effect of its high content of compounds such as anthocyanins, polyphenols and vitamin C. Due to its rich phytochemical content and unique elemental composition, the garden nasturtium may be used in the treatment of many diseases for example the illnesses of the respiratory and digestive systems.

High content of erucic acid in nasturtium seeds makes it possible to use its oil as treatment in adrenoleukodystrophy. It is also applied in dermatology because it improves the condition of skin and hair. More recently, the flowers of this species used as a decorative and edible element of some types of dishes.

It is used in folk medicine against cardiovascular disorders, urinary tract infections, asthma, and constipation (Ferro, 2006). Previous phytochemical studies have reported the occurrence of the flavonoids isoquercitrin and kaempferol glycoside, in the leaves of *T. majus* (Zanetti et al., 2004), besides glucosinolates and tetracyclic triterpenes (Griffiths et al., 2001). Several studies disclosed a number of relevant pharmacological properties associated with flavonoids, such as antioxidant, diuretic and cardioprotective effects (Wu and Muir, 2008).

Diuretics, such as thiazides and furosemide, are among the most used anti-hypertensive agents in humans. These drugs known for their ability to reduce blood pressure in hypertension and improve the cardiovascular function in heart failure, among others. However, these agents are also associated with important adverse effects, such deleterious/dangerous reduction in Na^+ and K^+ plasmatic levels. Thus, the development of new diuretic agents with reduced adverse effects is important to improve the output in several cardiovascular diseases.

Urginea maritima

The White Squill (Urginea maritima) belongs to family liliaceae, it has been used as a medicinal plant through centuries over the world, believed to have certain traditional actions. The Squill bulb used by herbalists traditionally for the treatment of cardiac failure, chronic bronchitis, rodenticides and asthma. Novel cardiac glycosides have recently been isolated from squill known as ufodienolides. The plant is rare in the Mediterranean coastal region. It is found in all

North African countries, in the Mediterranean region and the Canary Islands. The medicinal parts come from the bulbs of the white variety collected after flowering and the fresh, fleshy bulb scales of the white red varieties.

White squill contains, active constituents, several steroid glycosides (bufadienolides). Including scil-laren A (scillarenin + rhamnose + glucose), gluco scillaren A (scillaren A + glucose). proscillaridin A (scillarenin + rhamnose), scillaridin A, scilli-cyanoside, scilly glucoside, scilliphaeoside (12 B-hydroxy proscillaridin A), and glucoscilliphaeoside (12 B-hydroxyscillaren), the most important being scillaren A and proscillaridin A. Scillaren B has been used to describe a mixture of squill glycosides as opposed to pure scillaren A.Other constituents present in white squill include flavonoides (vitexin, isovitexin, orientin, isoorientin, scoparin, vicenin-2, quercetin, dihydroquercetin or taxifolin, dihydroquercetin-4-monoglucoside.), stig-masterol, scilliglaucosidin, and mucilage (gluco-galactans). Scillaren A and proscillaridin A. Scillaren B has been used to describe a mixture of squill glycosides as opposed to pure scillaren A.

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The action of the drug is that of a cardiac stimulant, with three important further properties all dependent on its irritant constituents. In small doses, that would not affect the heart, it is a gastro-intestinal, a bronchial and renal irritant.

The two later properties make it a powerful expectorant and a fairly active diuretic. The difference between its actions as an expecto-rant and a cardiac stimulant would seem to indicate its possession of two or more active principles, one specifically affecting the secretory mucous membranes, and the other the circulatory apparatus. Squill combined with Marrabium and Tussi-lago in bronchitis, with Ipecacuanha in whooping cough.

II. CONCLUSION

Traditional medicine known as indigenous or folk medicine comprises knowledge systems that developed over generations within various societies before the era of modern medicine.

The World Health Organization (WHO) defines traditional medicine as the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness. At the turn of the 20th century, folk medicine was viewed as a practice used by poverty-stricken communities and quacks.. The prevalence of folk medicine in certain areas of the world varies according to cultural norms. Some modern medicine based on plant phytochemicals that used in folk medicine.

The positive isotropic effect results mostly from blocking Na^+/ K^+- ATPase by glycoside constituent of the extract. The diuretic and natriuretic effects of the plant extract look like effects of potassium sparing diuretics. The hypertensive effect attributed to its diuretic property. The mechanism of bradycardia might be due to increased vagal tone, a reflex mechanism through baroreceptors.

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