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Some Egyptian Medicinal Plants and Toxins

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Abstract

Since old times, all cultures worldwide applied traditional medicinal plants as an alternative medicine for folk medicine and natural products. African content was among other contents in using herbal medicinal plants; in developing countries are available sources for drugs to cure many diseases. Medicinal plants content such as organic acids, alkaloids, terpenes, and glycosides play the greatest role in the manufactories of drugs, these contents have no side effects since rare medicinal plants give side effects. So traditional medicinal plants play the greatest role in the economics of many countries, which spotlighted medicinal plants to improve their production and chemical contents. Some of the medicinal plants of properties healing identified and noted from generation to generation along time to another t, and their benefits of ingredients for curing many diseases.

Mammalian pineal hormone melatonin (N-acetyl-5-methoxytryptamine), an amino indole produced through the metabolism of imeserotonin (5-hydroxytryptamine), has a highly potent scavenger against the highly toxic hydroxyl radical. There are three substances noradrenaline, histamine, and serotonin, which very important in animal physiology, particularly in brain metabolism, and occur in plants. The three important substances found in some edible and medicinal plants in Egypt. Some Egyptian medicinal plants showed an effective role against toxins. *Convolvulus fatmensis, Alhagi maurorum, Mentha specious, Conyza dioscaridis,* and *Plantago major* will discuss to clarify their effects on toxins disease.

Keywords: Egyptian; Medicinal plants; Disease; Toxins

Introduction

The uses of traditional medicine; during the last decade, have expanded globally and are gaining popularity. The world health organization (WHO), 2003, reported that herbal medicine serves the health need of about 80% of the world's population, especially for millions of people in the vast rural areas of developing countries. Several diverse lines of evidence indicate that medicinal plants represent the oldest and most widespread form of medication. Until the last century, most medicines derived directly from plant or animal sources.

Healing with medicinal plants is an old as humankind itself. The connection between man and his search for drugs in nature dates from the far past, of which there is ample evidence from various sources, written documents, preserved monuments, and even original plant medicines. Awareness of medicinal plant usage is a result of the many years of struggles against illnesses. Contemporary science has acknowledged their active action, and it has included in modern pharmacotherapy a range of drugs of plant origin, known by ancient civilizations and used throughout the millennia. The knowledge of the development of ideas related to the usage of medicinal plants as well as the evolution of awareness has increased the ability of pharmacists and physicians to respond to the challenges that have emerged with the spreading of professional services in the facilitation of human life.

The liver plays a central role in transforming and clearing chemicals and is susceptible to toxicity from these agents. Certain medicinal agents, when taken in overdoses and sometimes even when introduced within therapeutic ranges, may injure the organ. A number of plants have shown to possess hepatoprotective properties by improving antioxidant status. Thus, the efficacy of the drug would be preventive and passive for defending against damages. Traditional medicines are effective in certain disorders and based on experience in the use of plant products in the amelioration of common diseases. Several Egyptian medicinal plants have in recent times explored and the hepatoprotective effects of these plants.

The purpose of the present review article is to previously published and original data on the uses and applications of the following choses medicinal plants upon toxins disease. Special attention focused on the scientific evidence for the effectiveness of their remedies.

Alhagi maurorum

Mohammed and Sayed (2007), evaluated *Alhagi maurorum* aqueous extract (AME) for anti-ulcer activity in rats. They noticed that AME protected rats against water immersion restraint-stress; they added that AME did not show any sign of toxicity; the results suggest that AME has significant mucosal protective and antisecretory effects on gastric mucosa in rats. Ebrahimi et al., 2015, used the grinding seeds of *Alhagi maurorum* solution to absorb cadmium concentration. They found that the results of optimization tests showed that the optimum condition of cadmium adsorption (85.5% removal) occurs at a pH of 6.5 with 20 g/L of adsorption dose for 45 min. In addition, the efficiency of the adsorption process increases as the cadmium concentration reduces in the initial solution. They added that *A. maurorum* seed is a good biological adsorbent for adsorbing cadmium from an aqueous solution.

Changizi et al., (2016), studied the effects of *A. maurorum* on cisplatin-induced renal dysfunction, and explored the effect of *A. maurorum* on cisplatin-induced nephrotoxicity. Then they evaluated the effect of extracts in vivo model, they illustrated that a single dose of cisplatin significantly increased plasma creatinine and urea-nitrogen concentrations, compared with the sham group. Whereas treatment with *A. maurorum* significantly reduced their levels, compared with the cisplatin group. They added that the decreased creatinine increased absolute and relative execration of sodium and potassium caused by cisplatin, which improved with the application of *A. maurorum*. Meanwhile, Anehmangeli et al., (2021) applied extracts solvents of hexan water and aceton individually or combined, they evaluated the extracts as an antibacterial against *Staphylococcus aureus*, *Bacillus cereus*, *Essherichia coli*, *Citrobacter freunidii* and *Pseudomonas aeruginosa* as main food pathogenic strains. They included that extracting solvent composition had significant effects on biological and chemical characteristics of attained extracts, due to the high antibacterial effects of extracts, they added that they could successfully used as natural food preservatives.

Convolvulus fitments

Atta and abo El-sooud (2004), applied methanolic extracts (200 and 400 mg Kg(-1) of Convolves fitments to study the effect of the antinociceptive using acetic acid-induced writhing and tail-flick test in mice, they found that oral administration of 400 mg Kg(-1) significantly inhibited the nociception to acetic acid-induced writhes with the protection of 85.5-61.3 %. The tested plant extract in the dose of 2g Kg (-1) b.wt. did not cause any death or major signs of acute toxicity.

Conyza dioscorides exhibits anti-diarrheal activity in vivo at 200 and 400 mg/kg oral doses. One of the possible mechanisms of action was due to the ganglion-blocking effect (Atta and Mounier, 2004). The volatile constituents of C. dioscorides had promising antimicrobial activities against some tested microorganisms (El-Hamouly and Ibrahim, 2003). (Shabana et al., 1990), cited that this plant is among the plants that possess hypoglycemic effects. Amany et al., 2011, tested the Anti-inflammatory activity of the extracts *Convolvulus fatmensis*, and measured it against acute paw edema induced by carrageenan. They found that Carrageenan-induced inflammation in the rat paw represents a classical model of acute inflammation that used for evaluation of the anti-inflammatory activity of drugs or plant extracts, the total ethanolic extract of *C. fatmensis* G. Kunze. in a dose of 1000 mg/kg showed very good anti-inflammatory activity (74.46% reduction), o *Conyza dioscaridis*.

Conyza Dioscorides (L.) Desf. (Asteraceae) is a wild-growing highly branched shrub that attains a height of one to three meters and characterized by being hairy and glandular. The plant is widely distributed in the Middle East and surrounding African countries. In Egypt, it occurs mainly in the Nile region, Western and Eastern Deserts, the Sinai Peninsula, and Oases of the Mediterranean coastal strip (Boulos, 2002).

Due to its insect repellent effect, farmers in Egypt call *C. dioscorides* mosquito tree. (Shaltout and Slima, 2007), found that the volatile constituents of *C. dioscoridis* showed promising antimicrobial activities, and the extract of the combined aerial parts possessed anti-inflammatory activity (Awaad et al., 2011). However, nothing could traced concerning either the roots' constituents or their anti-hyperglycemic activity.

Soheir et al., (2012) evaluated the antihyperglycemic and antioxidant potentials of the different organs of C*onyza dioscoridis* (leaves, flowers, and roots) to select the relatively most potent for further isolation and identification of its components. They found that the antihyperglycemic activity on treatment with 50mg/kg of ethanol 70% extracts showed a significant increase in GSH level of the three organs and the most significant results were for leaves (45.14 ± 3.24 mg%), El-Hamouly and Ibraheim (2003), cited that the volatile constituents of *C. dioscoridis* showed potential antimicrobial activity against many pathogenic microorganisms, they added that the volatile constituents of C. dioscoridis showed potential antimicrobial activity against many pathogenic microorganisms.

ne-hour post-medication. Goncalves et al., 2005) reported resembling results.

Mentha species

El-Kashoury et al., (2014), investigated the aerial parts of *Menth suaveolens*, growing in Egypt, they illustrated moderate inhibitory activity against the tested human pathogenic bacteria. They added that the antimicrobial screening of the ethanolic extract and its subfractions performed. El-Kashoury et al., (2012) cited that the essential oil of fresh aerial parts showed potent antifungal activity against *Candida albicans*, *Saccharomyces cerevisiae* and *Aspergillus niger*. Elansary and Ashmawy (2013), with the essential oil of the Egyptian different species of *Mentha*, mentioned that there a strong antibacterial activity of the essential oil, especially against *Staphylococcus aureus*. Meanwhile, Dorman and Deans (2000) indicated that the significant antibacterial activity observed for the different species of *Mentha* oil is due to the presence of phenolic compounds like menthol and carvacrol.

Roman et al., (2014) obtained essential oil by hydrodistillation and subsequently analyzed by gas chromatography-mass spectrometry (GC-MS). They found that concentrations causing 50% or 90% larval mortality ranged from 17171 mg/l to 171 mg/l or 28171 mg/l to 577 mg/l, respectively. They added that essential oil obtained from *M. longifolia* and *M. suaveolens*, which only ones containing a majority share of piperitenone oxide, showed the highest effects.

Plantago major

Ahmed et al., (2018) analyzed *Plantago major*, and found that it contains several effective chemical constituents, including flavonoids, alkaloids, terpenoids, phenolic acid derivatives, iridoid glycosides, fatty acids, polysaccharides, and vitamins which contribute to its exerting specific therapeutic effects. They added that acute toxicity results revealed the non-toxic nature of *P. major* extract. *P.*

major extract at 5,000mg/kg well tolerated by rats since there were no toxic symptoms or deaths noted during the experimental period of the acute toxicity study. In addition, they found that the oral LD_{50} value of *P. major* extract was indeterminable in rats being more than 5,000mg/kg b.wt. In general, the lower the LD_{50} value, the higher toxic the extract is.

Reina, et al., (2013) cited that *P. major* obtains a large number of seeds that utilized for a long time as an immune-modulating, anti-infective, analgesic, anti-inflammatory, anti-ulcerogenic, anti-microbial, anti-cancer, and antioxidant agent. Samuelsen et al., (1995) found that the chemical analysis of the leaves revealed the presence of aucubin, a glycoside, which has been reported in several studies to be a powerful anti-toxin. They added that there are also some other effective ingredients in this plant such as baicalein, ascorbic acid, apigenin, benzoic acid, chlorogenic acid, citric acid, ferulic acid, oleanolic acid, salicylic acid, and ursolic acid.

Borregaardet al., (2007) concluded that neutrophil granulocytes (also termed polymorph nuclear leukocytes), which are generally referred to as neutrophils, are the most abundant type of white blood cells (40-70%) in humans and form a crucial part of the host defense system.

Conclusion

The discussion of medicinal plants cited in the present review article improved that it may be to defend toxins disease with medicinal plants. Natural products sources for the disease are available, showed the highest efficiency, besides they are safe, and have no insides effects. To get on highest effect against toxins, one must use a mixture of the previously medicinal plants cited here, or a mixture of their active ingredients after extraction from the proper parties of these plants.

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