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Identification of medicinal plants effective on sinusitis native to Shiraz province in Iran

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ABSTRACT

Sinusitis is one of the most infectious diseases that affect holes around the nose such as frontal ethmoid sinuses, maxillary and sphenoid. Symptoms usually include nasal congestion and obstruction, feeling of pressure or fullness in the face, anterior or posterior nasal causing discharge , headaches, fever, swelling and erythema in forehead or cheek and cough. The symptoms might be edema and mucosal congestion, nasal drainage, posterior nasal discharge, nasal septum deviation and polyps. The medicinal plants identified for instance are Amygdalus scoparia Spach, Echinophora platyloba DC., Haplophyllum perforatum L, Lavandula stoechas L, Borago officinalis, Matricaria recutita, Descurainia Sophia (L.) Schr and Haplophyllum perforatum L to treat sinusitis in Shiraz. Many of these plants have antioxidant activity and contain bioactive compounds such as flavonoids, flavonoids, polyphenols, anthocyanins, tannins and many other pharmaceutical bioactive ingredients that have effects on sinusitis. This paper aims to review the recently published papers in this topic.

Keywords: medicinal plants, sinusitis, Shiraz, Iran

INTRODUCTION

Nowadays, infectious and non-infectious diseases and the tolerance to drugs are expanding day by day [1-9]. Understanding the epidemiology and prevention and control and their treatment is of particular importance [10-28]. Sinusitis is one of the most common reasons patients visit the doctor [29]. Sinusitis is the fifth most common diseases in America which each year about 25 million people in this country will be diagnosed with the disease and antibiotics are prescribed [30-32]. Sinusitis is one of the most infectious diseases that affect holes around the nose such as frontal ethmoid sinuses, maxillary and sphenoid. Chronic sinusitis refers to the cases of patients, more than three months have passed from the onset of illness [33, 34].

Symptoms usually include nasal congestion and obstruction, feeling of pressure or fullness in the face, anterior or posterior nasal discharge. It causes headaches, fever, swelling forehead or cheek and cough and the symptoms include nasal mucosal edema and hyperemia, drainage, posterior nasal discharge, nasal septum deviation and polyps [35-37].

Different fungi are able to create cells in the sinuses in different ranges of diseases, which are a type of invasive fungal sinusitis to saprophytic and finally fungal allergic sinusitis (fungus Ball) is different. It may cause by fungi such as Aspergillus and Mucoracae which Mucoracae is most of them [38]. Chronic rhinosinusitis is not only a

physical disease but also affect people's daily functioning and mental health. Most patients have nasal congestion, thick mucus secretions, decreased sense of smell, headache, facial pain and decreased quality of life, often after several physicians refer appropriate treatment [39-41]. The precise reason of chronic rhinosinusitis is unknown, but it is often a wide range of bacterial pathogens are considered in these patients [42, 43]. A variety of aerobic bacteria, anaerobic organisms and fungi found growing in patients with sinusitis [46-44]. In addition to viral infections, other factors such as allergies, swimming, obstruction of polyps, tumors and foreign bodies, humoral or cellular immune disorders, anatomy and mucociliary dysfunction and cystic fibrosis predisposing factors more for bacterial sinusitis and in some situation for viral infections [47]. Chronic sinusitis is a disease that affects a significant percentage of the population and their long-term effects and discomfort to follow. The increasing use of drugs and antibiotic treatments and therapies in the treatment of patients with endoscopic surgery has opened new horizons and also alter the emergence of disease involvement [48]. Long-term use multiple medications, including antibiotics; put forward the hypothesis that exposure can cause changes in the medical treatment pattern of the pathogen in chronic sinusitis.
Nowadays, chemical drugs are widely consumed. These drugs have deleterious side effects of herbal medicines on consumer health [49-59]. Medicinal plantس since ancient times been a source of cheap and accessible people [68-60] and people preferred to use herbal medicines with the least side effects [73-69]. Ethnobotanical knowledge is the best way to know the therapeutic effects of medicinal plants [74-76]. The Ethnobotanical studies identified traditional healing properties of plants by people of culture and specific logic [77-83]. This knowledge makes certain species in certain areas where drugs are used as a source of modern science still has not lost to them [84-89]. In this study, we tried to identification and reporting medicinal plants native to the Shiraz city, which are used to control and treat sinusitis.

MATERIALS AND METHODS

Area of study

Shiraz, Fars province is one of the major cities Irano center. Solar population of over 1,460,665 tonnes of Shiraz in 1390 that figures, taking into account the population living in the suburbs to 1,700,687 tons. Shiraz in the Fars province, at an altitude of 1486 meters above sea level and is located in the Zagros mountain region and has a moderate climate. The city from the West to the Drake Mountains, from the north to the Bemou, Sabzpoushan, Chehelmagham and Babakouhi Mountains (of the Zagros mountain range) is limited. Shiraz, Fars province with a length of 40 km and width varies between 15 to 30 km with an area of 1268 square km southwest of Iran rectangular shape and geographically located in the central part of the Gulf. The average temperature in July (the hottest month) to 30 degrees Celsius, in January (the coldest month), 5 degrees Celsius, on April 17 ° C and in September 20 ° C recorded and average annual temperature is 18 degrees Celsius and annual rainfall in Shiraz is 3378 mm.

The methodology used to collect the efficacy of medicinal plants

Traditional health information collected for the period July to September of 2015 through interviews and questionnaires in the Shiraz city. The prepared questionnaire offered for herbalists. The questionnaires included information about the location, the identity of the interviewer, the name of the native plants, native consumption, the use, the use, the growing season and the plants were kept at home. The researchers personally referred to grocery stores and get information and registered their beliefs treatment plant. The results of the questionnaires were transferred identically to the tables. Finally, data were analyzed by Excel program [58-61].

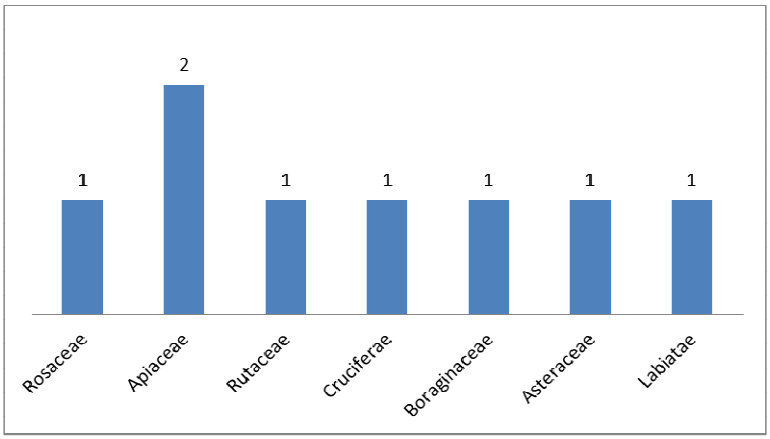
RESULTS

The results of the questionnaires revealed a total of 8 medicinal plants from 6 families for the treatment of sinusitis in Shiraz. The most effect and recorded family effective on sinusitis was Apiaceae family. The most organ used was fruit used by 34% and the highest form of usage was decoction with 80 percent. Full information of Ethnobotanical remedies to treat sinusitis in the city of Shiraz is followed in Table 1 and graphs 1, 2 and 3.

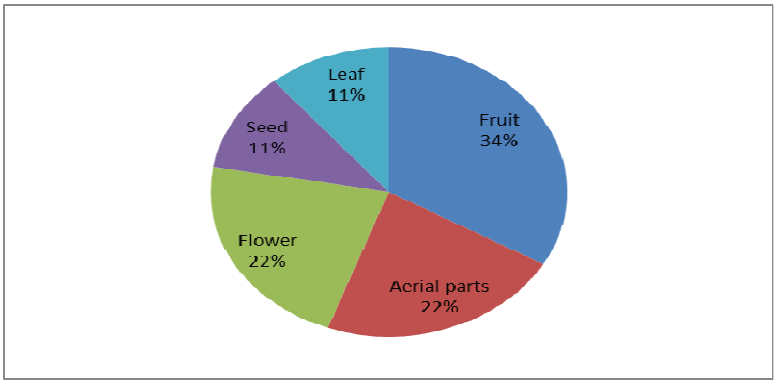
Table 1. Scientific name of the plant, family, Persian name, used parts, the traditional method used and therapeutic effect on traditional indigenous knowledge in the treatment of sinusitis

Scientific name	Family	Persian names	Usable Part of plant	How to use	Traditional Therapeutic effect in Shiraz
Amygdalus scoparia Spach	Rosaceae	Badam Kouhi	Fruit	Decoction	Sinusitis
Echinophora platyloba DC.	Apiaceae	Khosharizeh	Aerial	Decoction	Sinusitis
Haplophyllum perforatum L	Rutaceae	Mord	Seed & Leaf	Decoction	Sinusitis
Descurainia Sophia (L.) Schr.	Cruciferae	Khakeshir	Fruit	Decoction	Sinusitis
Prangos acaulis (DC.) Bornm	Apiaceae	Jashir Kotole	Fruit	Decoction	Sinusitis
Borago officinalis	Boraginaceae	Gole ghav zaban	Flower	Decoction	Sinusitis
Matricaria recutita	Asteraceae	Babooneh	Flower	Decoction	Sinusitis
Lavandula stoechas L	Labiatae	Ostokhodous	Aerial	Decoction	Sinusitis

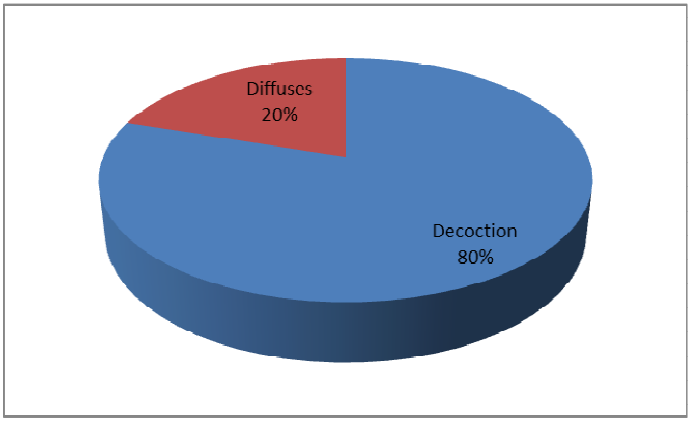
Graph No. 1. The number of plant families involved in sinusitis in Shiraz City



Graph No. 2. The percent effective in sinusitis treatment plant



Graph No. 3 percent of the traditional use of medicinal plants against sinusitis



DISCUSSION

Sinusitis is the fifth most common disease in America. Sinusitis is an inflammation, or swelling of the tissue lining the sinuses. Normally, sinuses such as frontal ethmoid, maxillary and sphenoid are filled with air, but when sinuses become blocked and filled with fluid, germs (bacteria, viruses, and fungi) can grow and cause an infection. The medicinal plants including *Amygdalus scoparia Spach*, *Echinophora platyloba DC.*, *Haplophyllum perforatum L*, *Lavandula stoechas L*, *Borago officinalis*, *Matricaria recutita*, *Descurainia Sophia* (L.) Schr and *Haplophyllum perforatum L* are used to treat sinusitis in Shiraz. Many of these plants contain phenolic compounds including flavonoids, flavonoids, polyphenols, anthocyanins, tannins and many other pharmaceutical bioactive ingredients that have effects on sinusitis [56-70]. The phenolic components of medicinal plants have antimicrobial activities [90-93]. The presented plants in this article have also phenolic compounds. Therefore, these plants should impose their antimicrobial activities, at least in part, through phenolic compounds. Phenolic compounds in plants have also antioxidant activities [94-103]. Therefore, in sinusitis which is associated increase in free radicals they should be beneficial. It should be noted that there are a lot of other diseases which are aggravated with free radicals [104-111]. Hence, the associated diseases with sinusitis may also get benefit with these plants antioxidants. Inflammation is ilso predominant in sinusitis and the other property of flavonoids is anti-inflammatory effects. Therefore, they may be beneficial in this way, too. It should be noted that there are other plants with these compounds [112-127] which may impose the same effects. In sum, data from this study can be ideal for clinical research to produce natural medicines against sinusitis.

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