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Ethnobotanical of Euphorbiaceae used in Hajjah district - Republic of Yemen

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Abstract

This paper is based on the results of an ethnomedicinal research about the conventional medical use of any family Euphorbiaceae plant during summer 2016 in Hajjah District Republic of Yemen. The study revealed 5 plant species belonging to 3 genera. Belonging to the family Euphorbiaceae are being used as medicine. The local people know the prospect and the nature of the plant utilization, through personal experiences and ancestral prescriptions. It was concluded that some plants are used singly while many others are used in combination. Similarly, few plant species are used for the treatment of a specific disease, while several others have multiple uses. The plants were mainly used Malaria, typhoid, Tumors, Sterile, purgative and laxative belly. The present investigation will help in the preservation of indigenous knowledge of the local people, which is depleting day by day. The most important of these species: *Acalypha fruticosa* Willd, *Euphorbia cactus* Ehrenb. *Euphorbia fruticose* Forssk, *Jatropha Curcas* L, *Euphorbia granulata* Forssk.

Keywords: Ethnobotanical, euphorbiaceae, herbal medicine

Introduction

Treating diseases with the herbal medicine is age-old practice in India, China, Egypt, Iraq, Persia, Syria and other Gulf countries. There are several traditional systems of medicine practiced in the world. The traditional Arabian system of medicine is practiced in many Arab countries especially in Yemen. Yemen has unique environmental conditions because of her geographical location. There are about 3000 species of wild plants occur in Yemen (Al-Khulaidi, 2012) [16], out of which about 40% species are utilized as medicinal plants. These species of medicinal plants have been utilized by the traditional practitioners, Hakims to treat several diseases since time immemorable. This knowledge has been passed from generations to generations.

Vegetation in Yemen is very rich. According to some recent studies, it has been recorded (Al-Khulaidi, 2012) [16] that 2836 plant species relates to 1065 genera and 179 families (2579 grow naturally, remaining are cultivated). Vegetation in Yemen is full of endemic and near endemic plants which are about 604 species.

Many studies confirm that the boom herbal medicine in Yemen due to the diversity and abundance of vegetation where there is in the land just more than three thousand species of plants while the number of endemic plants that no unparalleled anywhere in the world 415 plant species, including 236 species on the island of Socotra only. Yemenis have known some of these herbs and used on a large scale with many of them did not enter the circle of use, did not know or classified yet.

Yemen is a small country located in the southwestern part of the Arabian Peninsula. Yemen's coastal lowlands, eastern plateau, and deserts give it a diverse topography, which along with climatic factors make it opulent in flora. Despite the introduction of a Western medicinal system during the middle of the twentieth century Bhuwan K. Chhetri (2015) [1].

The diversity of some plants, extensively used by people with small industrial and sale is also in danger. These plants include: *Pulicaria jaubertii*, *Rumex nervosus*, *Cometes abyssinica*, *Dianthus uniflorus*, *Foeniculum vulgare* and *Portulaca oleracea*. Wild. Country Report on the State of plant genetic resources for food and agriculture (Second National Report 2009) [4].

Yemen is rich in endemic and near-endemic plants, with estimated to be 608, of which 457 are endemic (307 in Soqotra). Constituting some 16% of the flora which does not occur elsewhere. AL-Khulaidi, A. A. (2013) [8]. *Euphorbia* is one of the largest recognized genera of flowering plants, with about 2,000 species.

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It has a worldwide distribution but is especially diverse in arid or semi-arid regions of the tropics and subtropics. The morphological diversity in this genus includes geophytes, herbs, shrubs, understory and canopy trees, and an array of succulent and xerophytic forms. Despite this vast vegetative variation, the entire genus is united by a distinctive morphological synapomorphy, the cyathium – a pseudanthial inflorescence that looks superficially like a typical dicot flower. This structure is intermediate between a flower and an inflorescence in developmental terms (Brian and other 2013)^[12] and is comprised of a cup-like involucre that surrounds multiple male flowers (reduced to single stamens) and a single female flower (reduced to a single pistil). From this basic structure various elaborations have evolved, including colorful subtending bracts, cyathial nectary glands with petaloid appendages, and fusion or addition of cyathial glands. Some of these cyathial traits represent synapomorphies for particular clades within the genus. Despite the information provided by the cyathium and its variations, relationships among species within *Euphorbia* based on morphological characters have been shown to be equivocal in many cases Dorsey (2013)^[12].

Yemen Study By the researcher Baggash and Abdulrahman 2010^[21] on *Jatropha curcas* studying the possibility of producing *Jatropha Curcas* biodiesel and testing the resulting crude oil. Moreover, the paper focuses on the characteristics of "*Jatropha Curcas*", Biodiesel production technology, Production Process of *Jatropha Biodiesel*, quality and specifications as to the ASTM standards.

Material and Methods

Study Area

The Republic of Yemen lies in the southwestern corner of the

Arabian Peninsula. It extends between latitudes 12° 40' to 19° 00' N. and between longitudes 42° 30' to 53° 05' E. It is bordered by Kingdom of Saudi Arabia in the north, the Arabian Sea and the Gulf of Aden in the south, Sultanate of Oman in the east, and the Red Sea in the west. The climate of Yemen is generally ranging from semi-humid to semi-arid until reach to regions that have arid tropical climate. Temperatures in Yemen are changing from region to region and from season to season, also the relative humidity varies greatly in the different regions. It is ranging from 30% in the arid zones of the eastern region to above 80% in coastal areas. The average annual rainfall varies from less than 50 mm in the coastal areas to up to 1000 mm in the Southern uplands mainly around Ibb (19). Al-Hawshabi (2013)^[2]. Republic of Yemen consists of twenty one governorates. The study area Hajjah governorate is one of them.

Hajjah is the capital city of Hajjah Governorate in northwestern Yemen Map form (1). It is located 127 kilometres northwest of Sana'a, at an elevation of about 1800 metres. As of 2003, the Hajjah City District had a population of 53,887 inhabitants. It is located between latitudes (N 15° 36' 36" north, and the circle N 13° 20' 21" north) and between longitudes (E 33° 43" east, and longitude E 45° 43"). (Al-Hamdani, 2013)^[14].

The study area is about 9100 km² in size and characterized by a contrasty topographical location where the high mountains in the East represented by the mountain range of Maswar which is about (3240) meters height, and the highlands and the low-lying plains in the West which are about (720) meters height. According to the climate of the study area, it is hot and rainy in summer and cold and dry in winter.



Fig 1: Yemen Based on the 'Administrative boundaries map' of the Survey Authority, Sana'a 2002.

Methods

The survey was carried out in between August 2015 to December 2015 to obtain information about traditional medicinal plants used for treating for various diseases. The information about traditional medicinal plants collected from Healers, & local peoples in region of Hajjah, District, Yemen.

The collected data is based on visit and interviews of Healers, & local peoples in Hajjah. The plants collected during this work were identified with the help of different standard floras. The voucher specimen were scientifically identified, tag and were preserved in laboratory.

Result and Discussion

The ethnobotanical of Euphorbiaceae survey revealed that 5 species were being used as medicine (Table-1). These species belong to 3 genera.

The plant species also showed great medicinal potential (Table 1). Some of them were found to be a lot use plants: *Acalypha lanceolata* (for Malaria, Typhoid) and *Euphorbia cactus* (Malaria, wounds) and *Euphorbia fruticosa* (Tumors, wounds) and *Jatropha Curcas* (Sterile, purgative and laxative

belly) and *Euphorbia granulate* (Tumors).

The results of my studies have been agreed with the study Kumar 2012 [17] Where I found that the family types *Euphorbia* treated wounds and infections and disease, typhoid and facilitating the abdomen, and disagreed with the findings of a study researcher Kumar 2012 [17] in the treatment of malaria as the species *Acalypha lanceolata* Willd. It is used by the local population in the treatment of malaria.

Table 1: mode of preparation of the medicinal plant species used by inhabitants of District Hajjah.

	Botanical	Local name	Part used	Mode of preparation	Traditional Uses
1	<i>Acalypha fruticosa</i> Forssk.	Thefran	leaves	Leaves of the plant juice or decoction is used.	Malaria, Typhoid
2	<i>Euphorbia cactus</i> Ehrenb.	Kallah	Steem	Milky liquid	Malaria, wounds
3	<i>Euphorbia fruticosa</i> . Forssk.	Khotonbs	Steem	Milky liquid	Tumors, wounds
4	<i>Jatropha Curcas</i> L.	Sharep	Steem	Juice Plant	Sterile, purgative and laxative belly
5	<i>Euphorbia granulate</i> Forssk.	Wherey	Whole plant	Decoction, liniment	Tumors

Conclusion

Increased human activity due to urbanization and industrialization is posing a threat not only to flora of this region but also to the species which are used as medicines by the local people.

Therefore, there is an urgent need to spread awareness among local people by promoting measures such as controlled grazing, reforestation, proper land management to promote the sustainable use of medicinal plants.

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