



## Original article

## A survey on traditional plants used in Al Khobah village

Maged S. Abdel-Kader<sup>a,b,\*</sup>, Ali M.A. Hazazi<sup>c</sup>, Osman A. Elmakki<sup>a</sup>, Saleh I. Alqasoumi<sup>d</sup><sup>a</sup> Department of Pharmacognosy, College of Pharmacy, Prince Sattam Bin Abdulaziz University, 11942 Al Kharj, Saudi Arabia<sup>b</sup> Department of Pharmacognosy, College of Pharmacy, Alexandria University, Alexandria 21215, Egypt<sup>c</sup> College of Pharmacy, Prince Sattam Bin Abdulaziz University, 11942 Al Kharj, Saudi Arabia<sup>d</sup> Department of Pharmacognosy, College of Pharmacy, King Saud University, P.O. Box 2457, Riyadh 11451, Saudi Arabia

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## ABSTRACT

The use of traditional medicine for treatment of various diseases is a common practise in most of the developing countries including the Kingdom of Saudi Arabia especially in rural areas. In this survey, Al Khobah village was selected to study the status of Traditional Medicine. Al Khobah village is located on the Southern borders of the kingdom and characterized by diverse topography and moderate weather. The plants with medicinal uses were collected, identified and their methods of preparation and uses were recorded. After gathering all these information from the local people, literature survey was conducted on each plant to get information about pharmacological activities and weather they support the traditional use or not. The survey revealed that the uses of some plants are consistent with the experimental data in the literature. Some other plants were studied; however, they still need pharmacological investigation to prove the claimed uses. Other plant did not subject to any scientific investigation. © 2018 Production and hosting by Elsevier B.V. on behalf of King Saud University. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## 1. Introduction

Traditional medicine (TM) can be defined as knowledge, theories and practice used to prevent, diagnose and treat various diseases (Al-Bedah, 2005). TM represents the most ancient medical profession information passed from generation to generation over centuries (Tabbara, 1989). The major part of TM is the herbal medicine that is used by 75–80% of the worlds population especially in developing countries as it is considered more safe than synthetic drugs (WHO, 2001; Al-Arifi, 2013). Cross-sectional studies showed the prevalence of the use of TM is 61%, 82%, 61% and 51% in Turkey, USA, Malaysia and Australia, respectively (Nazik et al., 2012; Prasad et al., 2013; Saibul et al., 2012; Thomson et al., 2012).

Allopathic medicine adopted in Saudi Arabia by 1940 with official resistance to TM. However, this resistance was changed in the 1990s as increasing number of the population demanded access to TM (WHO, 2001). Surveys indicated that large number of Saudi citizens are interested in using TM alone or along with modern health facilities (Al-Bedah, 2005). One study concerned with the use of herbal medicine among Saudi citizens indicated that 80% of the participants have used herbs as medications. Another study showed that 70% of the surveyed sample using herbs for acute conditions, while only 20% using herbs for chronic conditions (Alanzi et al., 2016). The use of herbs among Saudi patients for the treatment of cancer, liver diseases, asthma and neurological disorders represents 55%, 90%, 80% and 42.3%, respectively (Jazieh et al., 2012; Al-Zahim et al., 2013; Al Moamary, 2008; Mohammad et al., 2015). A study conducted in Riyadh city regarding the beliefs of consumers in herbal medicine indicated that 81.2% of the surveyed sample considers them harmless (Suleiman, 2014). Another survey among diabetic patient in Jeddah indicated that 64% used herbs to control diabetes. About 55.1% prefer the use of herbs rather than prescribed drugs, 75.2% concomitantly use herbs and prescribed medication (Kamel et al., 2017).

In the present study we gathered information about the plants used by local people in Al Khobah area and after identifying them the literature was searched for scientific evidences to support the claimed uses.

\* Corresponding author at: Department of Pharmacognosy, College of Pharmacy, Prince Sattam Bin Abdulaziz University, 11942 Alkharj, Saudi Arabia.

E-mail address: [mpfarm101@hotmail.com](mailto:mpfarm101@hotmail.com) (M.S. Abdel-Kader).

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## 2. Materials and methods

### 2.1. Study area and population

Al Khobah is the main center of Al-Harith Governorate located on the Saudi-Yemeni border and is affiliated to Jazan region in southwest Saudi Arabia. It is about 90 km southeast of Jazan (Fig. 1). Its topography differs from mountains, hills, valleys, beautiful landscapes and green areas. The atmosphere ranges from coolness to moderation and frequent of rainfall throughout the year. Among the outstanding sites in the province is the “warm eye” that attracts people seeking treatment by bathing with the hot groundwater. The population of the Governorate is approximately 50,000 people (Wikipedia.org; slaati.com). The modern health facilities were introduced recently and they are generally providing care for simple conditions. The area also is not familiar with the herbal healers. Instead, the old generation practice and transfer the knowledge about the plants healing properties to the younger generations.

### 2.2. Questionnaire

Guidelines of the Declaration of Helsinki (World Medical Association, 2018) were followed. Interviews were performed in Arabic with elder persons with great experience and knowledge about the healing properties of the local plants inherited through generations. Information regarding the common names, parts used, methods of preparation, applications and indications were obtained in details.

### 2.3. Collection of herbal samples and plant identification

Specimens of all the used plants in TM were collected from the area and prepared for future deposition in the Herbarium of the Department of Pharmacognosy, College of Pharmacy, Prince Sattam Bin Abdulaziz University, Al Kharj, Saudi Arabia. Photographs of the plants in their natural habitat were taken for further documentation. The obtained common names were searched through the internet and different books dealing with common Arabic plant names and corresponding scientific names (A.O.A.D, 1988; Benson, 1959). Following this practice, the books describing the flora of Saudi Arabia were consulted to confirm the identity of the plants (Chaudhary, 2001; Collenette, 1999). Finally, the samples by the help of Taxonomist were matched with specimens deposited at the herbarium of the Medicinal, Aromatic and Poisonous Plants Research Center (MAPPRC), College of Pharmacy, King Saud University, Riyadh, Saudi Arabia.

## 3. Results and discussion

The information obtained from the questioner revealed that more than 25 plants are used by the local population for the treat-

ment of different conditions. All the plants were collected, preserved and identified through their common Arabic names. The plants were arranged in alphabetical order after their corresponding families. The plant parts and the methods of preparation were recorded as described by the local people (Table 1). The information obtained about the use of these plants are inherited through generations strictly have no access to modern medical information. Gathering these information from the survey we decided to explore the presence of any scientific support in the literature for such practice. The SciFinder program available through the Ministry of Education was utilized to search the literature for information regarding these plants.

The literature lacks any phytochemical or pharmacological data about five of the plants used by the people namely: *Ceropegia variegata* var. *adelaidae*, *Desmidorchis retrospiciens*, *Euphorbia fractiflexa*, *Jatropha glauca* and *Matthiola arabica*. Selection of these plants for pharmacognostical study is a promising task based on the claim of their TM uses. On the other hand, *Commiphora myrrha* (Myrrh) and *Senna alexandrina* are well known worldwide with their effect. Their use is not restricted to Al-Khobah area. Myrrh is the most popular herb used traditionally by the Saudi population (Alanzi et al., 2016).

Non of the studies on *Anisotes trisulcus* explored its claimed TM effect (Table 1). The plant reported to have local anaesthetic, smooth muscle relaxant and hepatoprotective properties (Al-Harbi et al., 1992; Fleurentin et al., 1986). *Adenium obesum* reported to have antiviral and antibacterial properties supporting its use for the treatment of tonsillitis (Paul et al., 2015; Kiyohara et al., 2012). Analgesic effect still to be explored.

A single report described the antiulcer effect of *Monolluma quadrangular* against ethanol-induced ulcers (Ibrahim et al., 2016). Other TM uses were not studied. *Sarcostemma viminalis* showed potential anticancer activity supporting the TM uses in North West Australia (Brian et al., 2015). However, the use of the plant in Mozambique for treatment of Tuberculosis (Jansen and Mendes, 1983) was not verified experimentally (Luo et al., 2011). In compliance with the TM uses the latex of *Calotropis procera* exhibited analgesic and anti-inflammatory effect against acute inflammation (Murti et al., 2015; Kumar et al., 2015).

Recent studies indicated that *Artemisia judaica* possesses hypoglycemic effect (Nofal et al., 2009; Helal et al., 2015). The plant is one of the popular traditional plants used in many Arab countries. Antimicrobial, insect-repellent and anticholinesterase activities were reported for *Rhanterium epapposum* (Aldoweriej et al., 2016; Demirci et al., 2017). No available experimental results can support the TM uses.

Two Capparaceae plants were among the used plants in the area. *Cadaba farinose* extract exhibited hepatoprotective and antioxidant activities (Telrandhe et al., 2010). The claimed TM use as hydrocephalus is extremely difficult to prove experimentally. *Cleome gynandra* reported to exert anti-inflammatory activity via stabilization of lysosomal membranes (Narendhirakannan et al., 2007). Such activity may accounted for its use in TM.



Fig. 1. Maps of Saudi Arabia showing the location of Al Khobah area (Source: Google maps).

Table 1

List of names, parts used, methods of preparation and indications of traditional plants from Al Khobah area.

Plant name & family	Vernacular name	Part used	Method	Uses
<i>Anisotes trisulcus</i> <b>Acanthaceae</b>	مض Madh	Leaves	Decoction for internal use. Foot are macerated in the decoction	Diabetes- malaria- foot inflammation and edema- epilepsy
<i>Adenium obesum</i> <b>Apocynaceae</b>	عدن Adne	Aerial parts	Powdered plant is mix with sesame oil or margarine and applied externally on the head. The plant juice is dropped directly in the mouth	Headache- muscle pain- tonsillitis
<i>Desmidorchis retrospiciens</i> <b>Asclepiadaceae</b>	غثا Ghlotha	Areal Parts	Dried powder mixed with milk and macerated for two hours and applied externally	Chickenpox- smallpox- measles
<i>Monolluma quadrangula</i> <b>Asclepiadaceae</b>	غلف - شطور الضبعة Gelf	Leaves	Heated on coal to soften the tissues, squeeze to reduce water content then cooked with spices and eaten	Influenza- diabetes-, spasm
<i>Ceropegia variegata</i> <b>Asclepiadaceae</b>	درة الكلب- ضروع الكلبا- ميبسه Meyabesa	Aerial part	Past prepared with water and applied externally in the abdominal area	Taeniafuge
<i>Sarcostemma viminale</i> <b>Asclepiadaceae</b>	الريدا Al Rida	Epidermal layer	The fresh plant material is minced and mixed with margarine then applied on wounded areas	Wounds
<i>Calotropis procera</i> <b>Asclepiadaceae</b>	العشر Al Ashr	latex	The fresh juice dropped over spines penetrated the skin to facilitate their removal. Leaves are heated over coal and put under the arm for systemic analgesic effect	Analgesic
<i>Artemisia judaica</i> <b>Asteraceae</b>	شبح بيثران Beithran	Areal parts	Decoction for internal use	Diabetes- cough – cold
<i>Rhanterium epapposum</i> <b>Asteraceae</b>	عرفج- عرفض- عرفط Arfat	Areal Parts	Paste with water from fresh plant material for external use. Decoction for internal use	Diabetes- allergy- edema- toothache
<i>Matthiola Arabica</i> <b>Brassicaceae</b>	سقا- شقارة- قصيد- قريض Soqar	Seeds	Eaten while fresh-or dried and macerated in water for internal use	Anemia
<i>Commiphora myrrha</i> <b>Burseraceae</b>	مر - عروق العجا Myrrh- Orouq Al Aqa	Oleo gum resin	Maceration in water for internal use	Wounds- burns- stomach pain- urinary tract infection
<i>Cadaba farinose</i> <b>Capparaceae</b>	قسيا Qusaia	Dried areal part	Paste with water and applied on the head	Hydrocephalus
<i>Cleome gynandra</i> <b>Capparaceae</b>	عيفقان Oyfiqan	Areal Parts	Decoction for internal use	Pain and muscle weakness
<i>Dracaena ombet</i> <b>Dracaenaceae</b>	مقر Meqr	Areal Parts	For wounds and burns applied directly. Spasm the fresh juice mixed with water. Packed for eating. Fresh juice mixed with water and drink for malaria	Wound- burns- spasm- hair- allergy- malaria
<i>Sansevieria ehrenbergii</i> <b>Dracaenaceae</b>	سلب - سلاف Salb	Aerial parts	Dried over coal, powdered and applied on wounded areas	Wounds- insect bites
<i>Euphorbia fractiflexa</i> <b>Euphorbiaceae</b>	صبار ام لبن - صياب Sayab	Dried areal parts	Powdered and applied directly to wounds. For Circumcision as incense	Chronic wounds- circumcision
<i>Jatropha glauca</i> <b>Euphorbiaceae</b>	عروق عيب Aobab	Stems	White stems dried, powdered and decoction prepared for internal use Maceration with water or cow milk for 24 h then used externally	Asthma Leukoderma- allergy
<i>Delonix elata</i> <b>Fabaceae</b>	شار Shar	Fresh leaves	Apply droplet from squeezing leaves directly to ears	Ear pain
<i>Senna alexandrina</i> <b>Fabaceae</b>	سنامكي - قلقل - عشرق Eshriq	Leaves	Decoction for internal use	Constipation- abdominal pain
<i>Ocimum basilicum</i> <b>Lamiaceae</b>	ريحان Rihan	Dried areal part	Decoction for internal use and as spices	Antispasmodic- stomach ulcer
<i>Origanum syriacum</i> <b>Lamiaceae</b>	مردقوش - زعتر- بردقوش Bardaqosh	Areal parts	Decoction for internal use	Analgesic during labor- inflammation of the uterus
<i>Lawsonia inermis</i> <b>Lythraceae</b>	حنا - حناء - حناية Honnaya	Aerial parts	Green leaves are macerated in a cup of water overnight for internal use	Urinary tract infection- skin protection
<i>Moringa peregrine</i> <b>Moringaceae</b>	مورينقا - بان Ban	Leaves	Decoction for internal use	Diabetes- colon- eyes- anemia
<i>Ziziphus spina</i> <b>Rhamnaceae</b>	سدر - ورق عرج Arq	Leaves	Decoction for external use	Hair tonic- antidandruff- allergy- scabies- itching- insect bites
<i>Cissus quadrangularis</i> <b>Vitaceae</b>	صلاح - سلع Salae	Fresh leaves	Minced leaves are extracted with hot margarine or olive oil and applied externally. For circumcision fresh leaves are soften on coal and applied directly to wound	Wounds- snake bites- circumcision
<i>Tribulus terrestris</i> <b>Zygophyllaceae</b>	قطبة - قطب Kotbah	Fruits	Decoction for internal use	Renal calculi

The reported anti-inflammatory and antinociceptive activities of *Dracaena ombet* steroidal saponins strongly support the antispasmodic and anti-allergic use of the plant by the local people (Moharram and El-Shenawy, 2007). The other member of the family Dracaenaceae, *Sansevieria ehrenbergii* is used as remedy for

wound healing and insect bites. Such claims can be justified by the reported antimicrobial activity (Geyid et al., 2005).

Different parts of *Delonix elata* proved to possess anti-inflammatory and anti-arthritic activities experimentally (Saravanan et al., 2015; Muruganathan and Mohan, 2011;



Manimekalai et al., 2011). These effects may explain its use for ear problems.

Family Lamiaceae comprises many aromatic plants with good scent. *Ocimum basilicum* (sweet basil) is applied by the local people for treatment of spasm and ulcer. Both effects are supported by experimental data (Reiter and Brandt, 1985; Mahmood et al., 2007). The second member of the Lamiaceae, *Origanum syriacum* (Zaatar) is used as analgesic and anti-inflammatory. However, these effects are not reported.

The use of *Lawsonia inermis* (Henna) for skin and hair is a common practice in many Arab countries. The antibacterial and antifungal activities of the plant are well documented in the literature (Rahmoun et al., 2010; Musa et al., 2011). People in Al Khobah area are using *Moringa peregrina* for the treatment of diabetes and GIT disturbance. Pharmacological study of the plant extract verified that the plant possess antidiabetic, anti-inflammatory, antispasmodic, antihypertensive and antibacterial effects (Ullah et al., 2015; Koheil et al., 2011; Sadraei et al., 2015; Safaeian et al., 2015; Majali et al., 2015). *Ziziphus spina* extract are present in many hair preparations (Schulze, 2017; Ali et al., 2011; Reichert et al., 2010) in compliance with the TM use practiced in Al-Khobah. The plant is also reported to have antifungal, antibacterial, antidiabetic and hepatoprotective effects (Abu-Taleb et al., 2011; Alsaïmary, 2009; Nesseem et al., 2009; Mohamed, 2012).

The TM applications of *Cissus quadrangularis* pointed out to possible antimicrobial activity. That was demonstrated by several research groups (Rathinam et al., 2012; Raj et al., 2010; Chidambara et al., 2003) supporting its traditional uses. We recently proved the claim of the use of *Tribulus terrestris* for kidney problems by measuring biochemical and tissue parameters in rats used as experimental animal model (Abdel-Kader et al., 2016).

#### 4. Conclusion

Literature search revealed that 15 of the plants used traditionally by the people in Al Khobah are supported by experimental data. Some of these plants are well known in other areas and countries. Seven of the surveyed plants were studied. However, the studied were not direct to prove the traditional uses and these plants need further pharmacological and phytochemical investigations. More surprisingly, five of the plants used locally were not subjected to any studies. The survey provided useful information for research interested in verifying the effect of traditional plants and the possibility of commercializing them.

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#### Further-reading

- <https://ar.m.wikipedia.org/wiki/محافظةالحرث>
- <https://www.slaati.com/2017/06/07/p796064.html>