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Ethnobotanical Survey of Medicinal Plants in West Kordofan (Western Sudan)

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Abstract

The aim of the present study was primarily to evaluate the medicinal uses of the plants known to some western Kordofan tribes and to encourage preservation of their culture, conservation and sustainable utilization of the plant wealth. The present study revealed a record of 49 plant species belonging to 26 families which are used in the folk medicine of West Kordofan, Sudan. It is believed to be a form of healthcare in many aspects of curing practices. The plants were arranged alphabetically by their family name followed by species name, local name, parts used, mode of preparation and medicinal uses. This wisdom available with the tribes is transmitted only through oral communication therefore needs conservation.

Key words: Medicinal plants; Ethnobotany; West Kordofan.

Introduction

Western Kordofan, an area in Sudan, is located between latitude 27^0 E and 30^0 E. Climatically, it is characterized by a long dry period (October-May) and a shorter period of precipitation (June-September). The average annual rainfall ranges for 400 mm in the Northern part to 800 mm in the Southern part. An average maximum temperature of 42 C reached during summer and falls to about 25 C in winter (El Sammani, 1985). The main constituent of vegetation is of the grass woodland savannah type (El Amin, 1990).

The population of this area is 768 000 inhabitants, 154 000 of whom are urban sedentary and 70 000 nomads, spending the dry season in the southern of the Sudan and migrating to the north with advent of the rainy season. The Department of Medicinal and Aromatic Plants at the National Centre for Research in Sudan has drawn an urgent short term objective to issue an atlas of medicinal plants used in Sudanese folk medicine (El Ghazali, 1987; El Ghazali *et al*., 1994; El Ghazali *et al*., 1997; El Ghazali, 1998; El Ghazali *et al*., 2003). Ethnobotanically, Western Kordofan area remains unexplored and no comprehensive account of traditional local remedies is available. The only work existing for a few areas of this region is compiled by EL-Ghazali *et al*., 1997 and. EL-Kamali, 2009.

The purpose of the present study was to document the indigenous medicinal plants used by the locals of West Kordofan with emphasis on those have never been described in the ethnobotanical literature of Sudan or with new therapeutic uses. The scant knowledge concerning medicinal plants prompted investigation on intensive search of systematic study to better understanding of traditional healing.

Materials and Methods

The current ethnopharmacological survey was conducted among 31 local practitioners in different regions of West Kordofan Area, included Babanusa, Muglad, Rigl EL Fula, Lagawa, EI Meiram. EI Tubn, EI Odaya, Ed Dibah, Abu EI Kiri, Namatein, Nama, Dambloya, Tundy, Bajaj and Umm Jack (Fig.1). The choice of the individual informant to be interviewed was of fundamental importance to the reliability of the gathered information. We only selected practitioners who utilized medicinal plants as part or all of their therapeutic activity, and who were regarded as professional. Questions addressed to the informants were mainly focused on local names, ailments and diseases treated, therapeutic part(s) of plants used and methods of preparation. A therapeutically efficacious effect was accepted if use is mentioned by at least three different informants.

Botanical specimens of recorded plants were collected and materials were mounted on herbarium sheet, and then deposited in the Herbarium of Botany Department, Faculty of Science, University of Khartoum. Identification was determined using the available relevant African Flora with special attention to scientific publications of Sudan and neighbouring countries (El Amin, 1990; Andrews, 1950, 1952, 1956; Berge and Hijam Maria, 1898; Broun and Massey, 1929; Hutchinson and Dalziel, 1968; Maydell, 1990; Ross, 1975) and by means of a comparison with herbarium specimens conserved in the Herbaria of Botany Department and that of Soba Forests Research Centre.

Results and Discussion

Information obtained from the analysis including the folk therapeutical data was compared with those of the atlas of medicinal plants used in Sudanese folk medicine. 49 plant species belong to 26 families was reported with further emphasis on their vernacular names, popular uses, parts used and methods of preparation. These plant species were arranged alphabetically by their families and botanical names (Table 1).

The plants listed in Table 1 include remedies for treating skin diseases, digestive system diseases, urinary and the respiratory systems diseases and antidotes for treatment of scorpion and snake strokes. Also, species like *Mitragyna inermis* (bark), *Balanites aegyptiaca* (leaves) and *Terminalia laxiflora* (bark) were used for the treatment of malaria. However, for some species, there is evidence in the literature that the mode of application being practised by the local people is likely to be effective. For example, in the traditional medicine, the bark powder of *Albizzia anthelmintica* is used as anthelmintic which coincides by the pharmacological validation of Galal *et al*., 1991a and b) and Koko (2000). The prevalence of numerous endemic diseases, malnutrition, poverty and increasing cost of personal healthcare emphasizes the role played by folklore medicine as revealed by the study conducted in Western Kordofan.

Moreover, we observed that, knowledge of medicinal plant use among the young was less well developed and negatively correlated with the level of informant education. Our observation suggests that the educated, usually younger people tend to migrate to more lucrative jobs away from the villages. As western Kordofan traditional medical knowledge is orally passed down via lifestyle, it is important to exhaustively document and publicize medicinal plant knowledge within the young generation to raise awareness of and appreciation for their traditional values and for the conservation and sustainable use of the plants as well as to keep the traditional medical knowledge left in their community alive.

In this context, it may be important that personal contacts with natural areas not only provide learning opportunities but also motivate people to protect their environment; thus, the natural setting seems to be central to the acquisition of traditional plant knowledge. In conclusion, folklore medicine in Western Kordofan may constitute an important component of the health care system. However, more than 30% of these species are endangered

species. This calls for efforts for the protection and conservation of these species. Further, the claimed therapeutical values of the reported species call for thorough investigation and modern scientific studies to establish their safety and identify the active ingredients.

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Fig. 1. Location map of Western Kordofan, Sudan

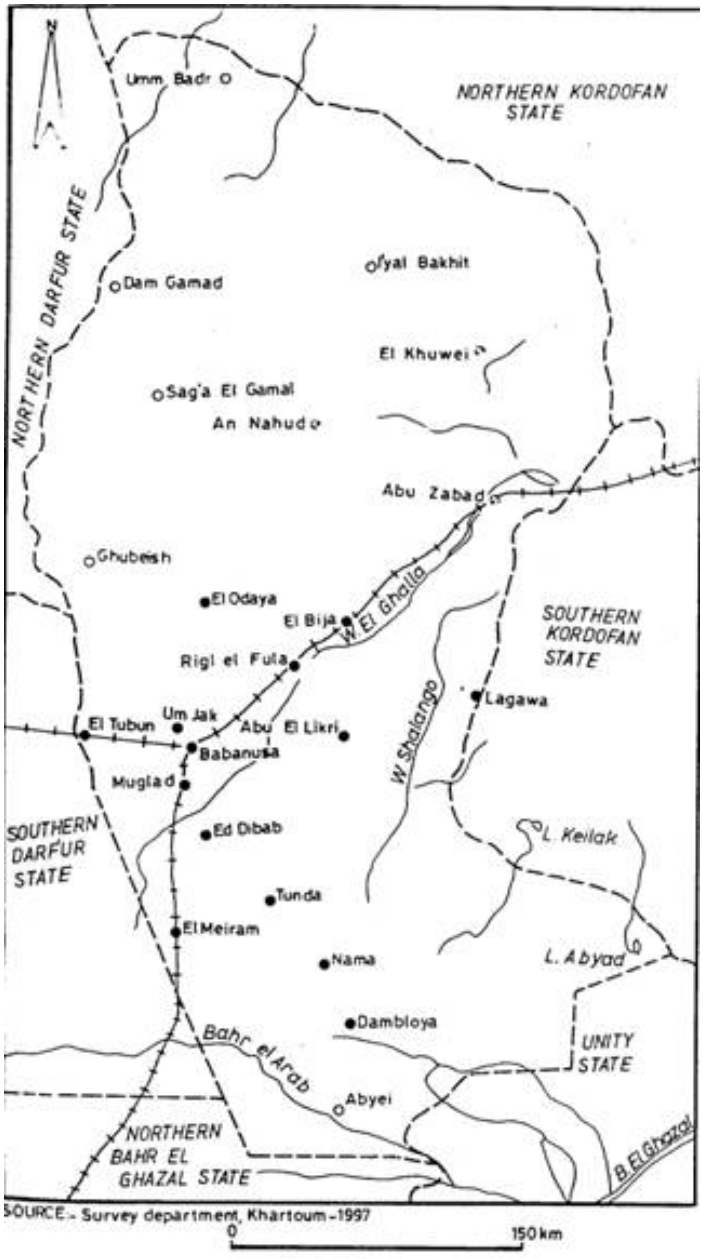

Table 1: Medicinal plants used in West Kordofan.

Family/ Species	**Local name**	**Part used**	**Preparations**	**Aliment treated**
Acanthaceae				
Blepharis linariifolia Pers	El Bigiel	Wp	Decoction	Urine retention

Ampelidaceae				
Cissus quadrangularis L.	Sala Sala	Wp	Smoke Decoction	Syphilis
			Cataplasm	Leprosy
				Snake bite
Anacardiacae				
Lannea fruticosa (Hochst.ex A. Rich.) Engl.	Layoun	Ba	Cataplasm	Swellings
Asclepiadaceae				
Calotropis procera (Ait.) Ait. f.	Ushar	Sl	Direct application	Scorpion bite
		Fr &Le	Boiled in seasamin oil	Rheumatic pains
Leptadenia arborea (Forsk.) Schweinf.	Shaaloub	Ro	Decoction	Jaundice
		Le	Paste	Dandruff
Mitragyna inermis (Willd.) Kuntze	Umm Gato	Ba	Decoction	Malaria
Balanitaceae				
Balanites aegyptiaca (L.) Del.	Hagleeg	Le	Decoction	Malaria
		Fr	Infusion	Kidney & bladder troubles
Bignoniaceae				
Kigelia africana (Lam.) Benth.	Damblo	Fr	Roasted and powdered	Swollen mastilis
Bombacaceae				
Adansonia digitata L.	Tabaldi	Ba	Decoction	Pain after birth, diarrhoea
Burseraceae				
Boswellia papyrifera (Del.) Hochst.	Umm Targtarg	Ba	Decoction	Dysentery
		Ro	Infusion	Respiratory infections
Commiphora oppbulsamum (L.) Engl.	Gafal	Ba	Decoction	Measles
		G	Decoction	Urine retention
Caesalpinaceae				
Bauhinia rufescens Lam.	El Bigiel	Ba	Decoction	Cough
Cassia sieberana DC.	Umm Kasho	Ro	Decoction	Snake bite
Senna italica Mill.	Sena Sena	Le & Fr	Decoction	Constipation
Senna occidentalis (L.) Link	Bun Balash	Se	Decoction	Diabetes; intestinal ulcer

		Ro	Decoction	Gonorrhoea
Tamarindus indica L.	Aradeib	LE	Decoction	Food poisoning
		G	Direct application	Toothache
Capparidaceae				
Boscia angustifolia A.Rich	Shara bieda	Ba	Paste	Swellings
Boscia senegalensis (Pers.) Lam.ex Poir.	Mikheit	Le	Decoction	Cough, head pustules
Capparis micranthe A.Rich.	El Mardo	Ro	Decoction	Snake bite
Crateva adansonii DC.	Dabker	Fr	Decoction	Stomach swellings
Maerua crassifolia Forsk.	Sereih	St	Cataplasm	Wounds
Combretaceae				
Combretum aculeatum Vent.	Shukheit	Ro	Decoction	Snake bite
Combretum glutinosum Perr.ex DC.	Habie	Ba	Cataplasm	Swellings
		Hw	Smoke	Rheumatic pains
Terminalia laxiflora Engl.& Diels	Darout	Ba	Decoction	Malaria
Ebernaceae				
Diospyros mespiliformis Hochst. ex DC.	Gughan	Ba	Decoction	Diarrhoea
Leguminaceae				
Arachis hypogaea L.	Foul	Se	Jam	Scorpion bite
Liliaceae				
Asparagus flagellais (Kunth.) Baker	Umm Mushbat	Ro	Decoction	Rabies, snake bite
Loganiaceae				
Strychnos spinosa Lam.	Umm Bekhesa	Fr	Eaten	Hypertension
Malvaceae				
Sida ovata Forsk.	Magasht el Regal	Ro	Paste	Taenia capitics
Mimosaceae				
Acacia gerrardii Benth.	Salgum	Ba	Decoction	Swellings
Acacia nubica Benth.	El Ifein	Fr	Paste	Tooth cavity
Acacia polyacantha Willd.	Umm Siniena	Ba	Decoction	Dysentery, gastric ulcer
Acacia senegal (L.) Willd.	Kitr Abied	G	Juice	Guardia

Acacia seyal Del.	Talih	Ba	Decoction	Bleeding
		Le	Direct application	Leprosy
Acacia sieberiana DC.	Kook	Ba	Decoction	Cough
Albizzia amara (Roxb.) Boiv.	Arad	Le	Cataplasm	Agnail
		Ba	Decoction	Scabies
		Se	Decoction	Jaundice
Albizzia anthelmintica Brongn		Ba	Infusion	Anthelmintic
Faidherbia albida Del.	El Haraz	Se	Cataplasm	Scorpion bite
Prosopis africana (Guill.& Perr.) Taub	Umm Surouj	Ba	Decoction	Sexual impotence
Moraceae				
Ficus platycephale Del	Gumaize	Ba	Cataplasm	Leprosy
Nymphaeaceae				
Nymphaea lotus L.	Suteib	Ro	Cataplasm	Agnail
Olacaceae				
Ximenia americana L	Umm Medeka	St	Smoke	Rheumatic pains
Papilionaceae				
Dalbergia melanoxylon Guill. & Perr.	Babanoose	Ro	Smoke	Rheumatic pains
		Le	Paste	Taenia capitis
		Fr	Decoction	Urine retention
Rubiaceae				
Gardenia ternifolia Schum.& Thonn	Abu Gawi	Ro	Decoction	Jaundice
Xeromphis nilotica (Stapt) Keay	Shagarat El Marfaaein	Ro	Decoction	Rabies
Solanaceae				
Solanum incanum L.	Abu Ifein	Fr	Decoction	Antispasmodic
Tiliaceae				
Grewia flavescens Juss.	Abu Halaf	Ro	Decoction	Stomach disorders,
				leprosy
Zygophyllaceae				
Fagonia cretica L.	Umm Shweika	Wp	Cataplasm	Skin allergy
Ba, Bark; Fr; Fruits; Hw, Heart wood; Le, Leaves; Ro, Roots; Se, Seeds; St, Stem; Wp, Whole plant; G, Gum				