Traditional use of medicinal plants in Central Sudan

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Abstract:
Background: Traditional medicine is a folk medicine or herbalism practice based on the use of plants and plant extracts. The diversity of the climate of Sudan is responsible for its very rich flora.
Purpose: The aims of this work are to determine habitat, folkloric and current medicinal uses and the active constituents of the studied plants.
Study design: The type of study design used in this work is observational and descriptive study design.
Methodology: Method used is face-to-face interviews of herbal shops in Khartoum and Gezira state. The language used is Arabic language. The interviews involved 15 from 50 herbal shops; 10 in Khartoum state and 5 in Gezira state. The study also contains information about current uses and newly active constituents of some plants species therein were cited.
Conclusion: Eighty-six plants and herbs are reported in this study. They are distributed in Forty-three families. The popularly used species by natives were found to include Solenostemma argel, Trigonella foenum-graecum, Acacia spp, Nigella sativa and Hibiscus sabdariffa. All of which known to contain mixture of phenolic, flavonoids, terpenoids and sterols phytoconstituents. The highest numbers of plants are found belong to family Lamiaceae (Seven species), Fabaceae (Seven species), Apiaceae (Six plant species) and Asteraceae (Five plant species).

Key words: Ethnopharmacology, Traditional herbal medicine, Phytotherapy.

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Introduction:

Traditional medicine is a folk medicine or herbalism practice based on the use of plants and plant extracts. Traditional medicinal is also known as botanical medicine, medical herbalism, herbal medicine, herbology, and phytotherapy. The scope of herbal medicine is sometimes extended to include fungal and bee products, as well as minerals, shells and certain animal parts (Acharya and Shrivastava 2008).

Many plants synthesize substances that are useful to the maintenance of health in humans and other animals. These include aromatic substances, most of which are phenols or their oxygen-substituted derivatives such as tannins. Many are secondary metabolites, of which at least 12,000 have been isolated — a number estimated to be less than 10% of the total. In many cases, these substances (particularly the alkaloids) serve as plant defense mechanisms against predation by microorganisms, insects, and herbivores. Many of the herbs and spices used by humans to season food yield useful medicinal compounds (Lai 2004; Tapsell 2006). The use of herbs to treat disease is almost universal among non-industrialized societies (Edgar et al 2002). A number of traditions came to dominate the practice of herbal medicine at the end of the twentieth century.

Many of the pharmaceuticals currently available to physicians have a long history of use as herbal remedies, including opium, aspirin, digitalis, and quinine. The World Health Organization (WHO) estimates that 80 percent of the world's population presently uses herbal medicine for some aspect of primary health care (WHO 2013). Pharmaceuticals are prohibitively expensive for most of the world's population, half of which lives on less than $2 U.S. per day (Population Reference Bureau 2005; Kevin 2007). In comparison, herbal medicines can be grown from seed or gathered from nature for little or no cost. Herbal medicine is a major component in all traditional medicine systems, and a common element in Siddha, Ayurvedic, homeopathic, naturopathic, traditional Chinese medicine, and Native American medicine.

The use of, and search for, drugs and dietary supplements derived from plants have accelerated in recent years. Pharmacologists, microbiologists, botanists, and natural-products chemists are combing the Earth for phytochemicals and leads
that could be developed for treatment of various diseases. In fact, according to the World Health Organization, approximately 25% of modern drugs used in the United States have been derived from plants (WHO 2013).

Three quarters of plants that provide active ingredients for prescription drugs came to the attention of researchers because of their use in traditional medicine (Farnsworth 1990). Among the 120 active compounds currently isolated from the higher plants and widely used in modern medicine today, 80 percent show a positive correlation between their modern therapeutic use and the traditional use of the plants from which they are derived (Fabricant and Farnsworth 2001). At least 7,000 medical compounds in the modern pharmacopoeia are derived from plants (IENICA, 2005).

Sudan is the largest country in Africa with an area of 2 496 138 km². It lies between latitudes 3⁰ N and 23⁰ N and longitudes 21⁰ E and 39⁰ E. It has common boundaries with nine countries, Egypt, Chad, central Africa, Uganda, Kenya, Ethiopia and Eritrea. After independence of South Sudan in 2011, Sudan became the second largest African country after Algeria.

The climate of Sudan ranges from completely arid to tropical zones with a wide range of bioclimatic regions, from the almost barren deserts in the north to the tropical rain forests in the extreme south of the country. The diversity of the climate of Sudan is responsible for its very rich flora. (Karan and Vishavjit 2004).

This an operational study type intended to investigate plants types used traditionally by local community in Central Sudan. It contains an authentication of local names with scientific names, plants habitat and active constituents, responsible for their pharmacological activities, distinct, approved medicinal uses throughout the world, and newly introduced have been included. The study considered as a guide for researchers and students who have interest in ethnopharmacology and medicinal plants research.

**Objectives:**
To determine habitat, folkloric and current medicinal uses and the active constituents of the studied plants. Also, for identifying some of Sudan’s most important drugs.

**Methods:**
Method used is face-to-face interviews of herbal shops in Khartoum and Gezira state. The language used is Arabic language. The interviews involved 15 from 50 herbal shops; 10 in Khartoum state and 5 in Gezira state. The study also contains information about current uses and newly active constituents of some plants species there in were cited.

**Results**

As reported in Table (1), Eighty-six plants and herbs are reported in this study. They are distributed in Forty-three families. The popularly used species by natives were found to include *Solenostemma argel*, *Trigonella foenum-graecum*, *Acacia* spp, *Nigella sativa* and *Hibiscus sabdariffa*. All of which known to contain mixture of phenolic, flavonoids, terpenoids and sterols phytoconstituents. The highest numbers of plants are found belong to family Lamiaceae (Seven species), Fabaceae (Seven species), Apiaceae (Six plant species) and Asteraceae (Five plant species). Most of the studied plants are obtained from different parts of Sudan and several countries such as Egypt, South Sudan, and Greece. In Sudan, the fewest number of studied plants are obtained from Kassala state.

In Sudanese traditional medicine, plants are used extensively for several diseases and ailments including, constipation, malaria, gout, jaundice, etc. Most of the reported plants are used as anti-spasmodic, carminative, aphrodisiac, anti-hemorrhoid, anti-hypertensive and anti-diabetic agent. Apart from this, some of the reported plants have nutritive value such as anise and Abu-liali (*Detarium microcarpum*). Several clinical and pharmacological uses of the studied plants are reported in Table (1), such as anti-oxidant, antimalaria, anti-diarrhea, anti-microbial…etc. The antioxidant, anti-bacterial, anti-fungal and ant-inflammatory activities are the most studied uses of the plants. This may be due the current trend concerning utilization of natural products and herbal medicines.

Some of the reported plants have shown promising uses as pharmaceutical aids such as Hab ALaziz (*Cyperus rotundus*) and *Acacia* spp.
<table>
<thead>
<tr>
<th>Scientific name, Vernacular Name(s)</th>
<th>English Name(s)</th>
<th>Habitat and distribution</th>
<th>Medicinal uses (clinical and pharmacological)</th>
<th>Main folkloric and pharmaceutical preparation &amp; dosage form</th>
<th>Active constituent(s)/class and references</th>
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<tbody>
<tr>
<td><strong>Cymbopogon schoenanthus</strong> (Poaceae) H.</td>
<td>Maharib, Halfa bar</td>
<td>Camel’s hay</td>
<td>Northern and central Sudan</td>
<td>Antioxidant and antiacetylcholinesterase</td>
<td>Decoction of the whole plant used as diuretic and antigout. Essential oils (limonene (10.5 - 27.3%), β-phellandrene (8.2 - 16.3%), δ-terpinene (4.3 - 21.2%) and α-terpineol (6.8 - 11.0%)- (Khadri et al. 2008)</td>
</tr>
<tr>
<td><strong>Cyperus rotundus</strong> (Cyperaceae) S, R</td>
<td>Alseidaa</td>
<td>Nut grass</td>
<td>Sudan</td>
<td>Antimalarial</td>
<td>Herbal tea and powder of rhizome used as diuretic, antispasmodic, gum bleeding, antiemetic and hypotensive. Sesquiterpene (patchoulenone, caryophyllene α-oxide, 10,12-peroxycalamenene and 4,7-dimethyl-1-tetralone)- (Thebtaranonth et al. 1995).</td>
</tr>
<tr>
<td><strong>Haplophyllum tuberculatum</strong> (Rutaceae) H</td>
<td>Alhazza</td>
<td>Plant of the mosquito</td>
<td>Northern Sudan</td>
<td>Antibacterial and antifungal</td>
<td>Maceration of whole plant used for menstrual irregularities Essential oils (β-phellandrene, limonene, (Z)-β-ocimene, β-caryophyllene, myrcene, and α-phellandrene) (Al-Burtamani et al. 2005; Pl@nt Use, 2020)</td>
</tr>
<tr>
<td><strong>Ziziphus spinachristi</strong>. (Rhamnaceae) L, B.S.R.</td>
<td>Sidr, Nabq</td>
<td>Christ’s thorn</td>
<td>Northern and central Sudan</td>
<td>Aqueous extract of root bark has an antinociceptive activity in mice and rats and a central depressant</td>
<td>Leave maceration used as hairdressing, antiseptic and antidandruff. Seed oil used for rheumatoid and Leave contains saponin glycoside. Bark contain cyclopeptide alkaloid (Wallis, 2002) From butanol extract of the</td>
</tr>
</tbody>
</table>
Stem bark has antidiarrheal effects in rats. Different chemical compounds were identified in the stem bark (Ads et al. 2018).

<table>
<thead>
<tr>
<th>botanical name</th>
<th>geographical origin</th>
<th>plant part</th>
<th>medicinal property</th>
<th>other uses</th>
</tr>
</thead>
</table>
| *Mentha sp* (Lamiaceae) H. Na’naa baladi Spearmint Several parts of the Sudan Antifungal Decoction of the whole plant used as carminative. vapour used in sinusitis (aromatic stimulant) Essential oils (carvacrol, and thymol (Adam et al. 1998)
| *Carum carvi* (Apiaceae) F. Karawia الكراوية Caraway Sudan, Egypt Antibacterial Maceration used as antispasmodic, carminative and lactogoge Essential oils (carvone, limonene, germacrene D, and *trans*-dihydrocarvone) (Iacobellis et al. 2005)
| *Pimpinella anisum* (Apiaceae) F. Yanson الزَّبَن Anise Several parts of the Sudan Antifungal Maceration of fruit used as carminative, antispasmodic and nutritive Essential oil, anethole (Kubo and Himejima 1991)
| **Thymus vulgaris**  
( Lamiaceae) H. | Zatar | Thyme | Egypt, alsham | Antioxidant | Herbal tea used as carminative  
Essential oils (Eugenol, thymol, carvacrol, linalool (0.471 mg/g), α-terpineol (0.291 mg/g), and 1,8-cineole and 4-allylphenol (Lee et al. 2005) |
|---|---|---|---|---|---|
| **Lawsonia inermis**  
( Lythraceae) L. | Henna | Henna | Several parts of the Sudan | Antifungal | Poultice used for skin and hair staining, febrifuge  
2-hydroxy-1,4-naphthoquinone (Lawson)- (Tripathi et al. 1978; Abdelrahman et al. 2020) |
| **Eucalyptus globulus**  
( Myrtaceae) L. | Alban | Eucalyptus | Wide spread | Pediculicide | Oil used as massage for joint pain, antiseptic and insect repellant  
Monoterpenoids [1,8-cineole, l-phenandrene, (-)-α-pinene, 2-β-pinene, trans-pinocarveol, γ-terpinene, and 1-α-terpinol] and terpenoids (β-eudesmol and geranyl acetate) (Yang et al. 2004). |
| **Eruca sativa**  
( Brassicaceae) S. | Gergir, Kuthaa | Arugula | Widely cultivated | Antioxidant | The seeds used as general tonic, to treat hair fall and aphrodisiac.  
Carotenoids, vitamin C, fibers, flavonoids, Glucosinolates (glucoerucin) (Barillari et al. 2005a). |
| **Cyperus esculentus**  
General tonic, aphrodisiac, stimulant and remove black spot from skin.  
Tuber starch has lower swelling power than  
β-Sitosterol (Abu-Mustafa et al. 1960). Tuber contains vitamins A, C, and E as well as various amino acids. Tuber has low amount of antinutrients such as |
<table>
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<tr>
<th>Plant Name</th>
<th>Common Name</th>
<th>Attributes</th>
<th>Medicinal Properties</th>
<th>Phytochemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Raphanus sativus</em></td>
<td>Radish</td>
<td>Wide and cultivated in Sudan</td>
<td>Antioxidant</td>
<td>Glucosinolates (glucoraphasatin and glucoraphenin) (Barillari et al. 2005b).</td>
</tr>
<tr>
<td><em>Petroselinum crispum</em></td>
<td>Parsley</td>
<td>Several parts of the Sudan</td>
<td>Antioxidant</td>
<td>Phenols (caffeic acid) (Kim et al. 2008).</td>
</tr>
<tr>
<td><em>Zea mays</em> (corn)</td>
<td>Shawashi alzoraa</td>
<td>Several parts of the Sudan</td>
<td>Antioxidant</td>
<td>Volatile oil (cis-α-terpineol (24.22%), 6,11-oxidoacor-4-ene (18.06%), citronellol (16.18%), trans-pinocamphone (5.86%), eugenol (4.37%), neo-iso-3-thujanol (2.59%), and cis-sabinene hydrate (El-Ghorab et al. 2007).</td>
</tr>
</tbody>
</table>
| **Oscimium basilicum**  
(Lamiaceae) Fl, S, L | Al reehan  
الريحان | Sweet basil | Wild plant in central and northern Sudan | Antioxidant | Aphrodisiac, insect repellant and carminative | Essential oils (linalool; 3.94 mg/g), (estragole; 2.03 mg/g), methyl cinnamate (1.28 mg/g), (eugenol; 0.896 mg/g), and 1.8-cineole (0.288 mg/g.) (Lee et al. 2005). |
|----------------|-----------------|-------------|------------------------------------------|-------------|---------------------------------|------------------|
| **Elettaria cardamomum**  
(Zingiberaceae) F. | Alhabahan, Hab Alhal, Heel  
الهبانة، الهالهيل | Cardamon | India and Australia | Antifungal | Fruit maceration improve memory, aphrodisiac and vitiligo with olive oil and henna | Essential oil (1.8-cineole and α-terpinyl acetate) (Rahman et al. 1999). |
| **Cinnamomum verum**  
(Lauraceae) B. | Girfaa, Darseni الدارسين | Cinnamon | China | Antifungal | General tonic | Cyclic monoterpene (β – phellandrene) and phenol (carvacrol) (Gourine et al. 2010). |
| **Pistacia lentiscus**  
(Anacardiaceae)  
V.oil (Resin) | Mistica, Mastaki  
المستكا، الماستك | Lentisque | Greece | Antioxidant | Maceration used as expectorant and improve memory, diuretic, antidiarrhoea in children. | Monoterpenes and sesquiterpenes (α-pinene/α-thujene, spathulenol, bicyclogermacrene and δ-3-carene (Gourine et al. 2010). |
| **Coriandrum sativum**  
(Apiaceae) F. | Kasbara  
الكاردايرو | Coriander | Northern Sudan | Bactericidal | Fruit maceration Spicy and carminative | Aliphatic (2E)-alkenals and alkanals ((2E)-Dodeceneal (C12) and (2E)-undecenol (C11)) (Kubo et al. 2004). |
| **Foeniculum vulgare**  
(Apiaceae) F. | Shamar  
الشمار | Sweet fennel | Several parts of the Sudan | Antioxidant | Fruit maceration used as Carminative | Phenolic compounds (3-cafeoylquinic acid, 4-cafeoylquinic acid, 1,5-O-dicafeoylquinic acid, rosmarinic acid, eriodictyol-
| **Capsicum frutescens**  
(Solanaceae) F. | Shataa | Hot pepper, chill | Several parts of the Sudan | Antioxidant | Febrifuge | Carotenoids (provitamin A), flavonoids, phenolic acids (capxanthin, lutein and zeaxanthin), ascorbic acid-(Howard et al. 2000). Capsaicin (Awad et al 2014). |
|---|---|---|---|---|---|---|
| **Datura stramonium**  
(Solanaceae) R, Fl, S | Saikaran | Stramonium, Jimsonweed | Central Sudan | Complete protection time (mosquito repellent). Analgesic and anti-asthmatic  
The boiled extract of seed has rapid onset of effects and may be useful for treatment of Organophosphorus poisoning. | Sedative and antispasmodic | Alkaloids (hyoscine, hyoscyamine, atropine) (Evans and Trease 2002b). Two new tropane alkaloids, 3-phenylacetoxy-6, 7-epoxynortropane and 7-hydroxyapoatropine were tentatively identified. Minor alkaloids are reported for the first times in D. stramonium are tigloidin, aposcopolamine, apoctropin, hyoscyamine N-oxide and scopoline N-oxide 17-20. 6 a-ditigloyloxytropane and 7-hydroxyhyoscyamine (Soni et al. 2012) |
| **Lepidium sativum**  
(Brassicaceae) S. | Al Rashad | Garden-cress | Wild plant in central Sudan | Chemoprotective | Oral powder used for Peptic ulcer. Poultice used for abscess and Tinea | Glucotropaeolin (GT) and benzylisothiocyanate (BITC) (Kassie et al. 2002) |
| **Carthamus tinctorius**  
  (Asteraceae) Fl. | Osfur, Gurtom | Safflower, false saffron | Saudi Arabia, Southern Asia, China, India, Iran, and Egypt | Menstrual cramps, post-partum hemorrhage, whooping cough and chronic bronchitis, rheumatism, and sciatica. Purgative, analgesic and antipyretic. Water extract of the flower is an anticoagulant, vasodilating, antihypertensive, antioxidative, neuroprotective, immunosuppressive, anticancer agent with inhibitory impacts on the synthesis of melanin. | Skin staining, diuretic, headache and oedema. | Flavanoids (carthamone) 2-safrole- (El Ghazali et al. 1998). Oilseed consists of 70% linoleic acid, 10% oleic acid, and mere amounts of stearic acid. Flavonoids, phenylethanoid glycosides, coumarins, fatty acids, and steroids identified from various parts of the plant (Delshad et al. 2018) |
| **Tamarix aphylla**  
  (Tamaricaceae) H. | Tarfaa, Aathil | Tamarisk | Wild plant Nile bank in Sudan | All plant parts have antifungal, antimicrobial, antioxidant, cytotoxicity, | After burning ash used for burning wound and hemorrhoid | Polyphenols, tamarix ellagic acid, ellagatannin (El Ghazali et al. 1998). Rhamnocitrin, cyanidin 3-O-glycoside, cyanidin, delphinidin |
<table>
<thead>
<tr>
<th><strong>Origanum vulgare</strong> (Lamiaceae) H</th>
<th>Bardagosh, Mardagosh</th>
<th>Sweet marjoram</th>
<th>Egypt</th>
<th>Antibacterial</th>
<th>The herbal tea used for weight loss. Vapour for migraine. Essential oils (thymol (33%), gamma-terpinene (26%), and p-cymene (11%) (Faleiro et al., 2005).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Piper nigrum</strong> (Piperaceae) F.</td>
<td>Filfil Abiet الفلفل الأبيض</td>
<td>White piper</td>
<td>India</td>
<td>Antioxidant</td>
<td>Aphrodisiac, carminative</td>
</tr>
<tr>
<td><strong>Quercus sp</strong> (Fagaceae) S.</td>
<td>Baloat, Sendian السنديان</td>
<td>Oak</td>
<td>Syria</td>
<td>Gastroprotective</td>
<td>Hemorrhoid, varicose vein, fistula, ulcer, enureses Tannins (pedunculagin, castalagin, phillyraeoidin A, and acutissimin) (Khennouf et al. 2003).</td>
</tr>
<tr>
<td><strong>Tamarindus indica</strong> (Caesalpinaceae) F.L.</td>
<td>Aradeeb, Tamr hindi العرديب هندى</td>
<td>Tamarind</td>
<td>Northern and central Sudan</td>
<td>Antioxidant</td>
<td>Fruit maceration used as smooth laxative, antimalaria and jaundice. Phenolic derivatives (2-hydroxy-3',4'-dihydroxyacetophenone(TA), methyl-3,4-dihydroxybenzoate (TA1), 3,4-dihydroxyphenylacetate</td>
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</table>
| **Glycyrrhiza glabra**  
(Fabaceae) R. | Erg Alsos | Licorice | Egypt | Antioxidant | Root maceration used to treat respiratory tract infections & ulcer. | Phenolic derivatives (hispaglabridin B, isoliquiritigenin and paratocarpin) (Chin et al. 2007). |
| Chamomilla recutita  
Matricaria recutita  
(Asteraceae) Fl. | Babong, Ein elget | Roma chamomile | Mediterranea basin | Antiproliferative and Apoptotic | Flower maceration used as carminative, antigout and induce calmness | Glycoside (apigenin 7-O-glucoside) (Srivastava and Gupta 2007). |
| **Punica granatum**  
(Lythraceae) F.S.B | Roman | Pomegranate | Egypt | Antioxidant | Seed used as anthelmintic. Fruit juice used for ulcer healing. Fruit peel used in nasal bleeding | Juices contain (hydrolyzable tannins (punicalagin), anthocyanins, ellagic acid derivatives) (Gil et al. 2000). |
| **Ruta graveolens**  
(Rutaceae) H. | Al sazab | Rue | Mediterranea sea | Antifungal | Maceration of whole plant used as antiepileptic, UTI infection, aphrodisiac and back pain. | Furanocoumarins (hydroxycoumarin, and 7-methoxy coumarin). Alkaloid (1-methyl-2-6-(3’-(4’-(3’-(3’-(3’-methyleneoxyphenyl)hexyl)-4-quinolone) (Oliva et al. 2003). |
| **Salvia officinalis**  
(Lamiaceae) H. | Al Meremeia | Sage | Syria | Antioxidant | Maceration of whole plant used as skin staining, carminative | Glycoside (1-O-(2,3,4-trihydroxy-3-methyl)butyl-6-O-feruloyl-β-d-glucopyranoside, ethyl β-d-glucopyranosyl tuberonate, p-hydroxybenzoic acid, (−)− |
<table>
<thead>
<tr>
<th><strong>Rosmarinus officinalis</strong> (Lamiaceae) H.</th>
<th>Ecleel Algalabal, Hasaleban</th>
<th>Rosemary</th>
<th>Mediterranean</th>
<th>Anti-inflammatory</th>
<th>Memory stimulant, antibacterial and antifungal and headache.</th>
<th>Triterpenes, ursolic acid, oleanolic acid, and micromeric acid (Gianmario et al. 2007).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Detarium microcarpum</strong> (Caesalpinia) F</td>
<td>Abu-laili</td>
<td>Sweet dattock</td>
<td>Nubba mountain Bahr el ghazal</td>
<td>Antifungal and inhibition of acetyl cholinesterase</td>
<td>Fruit’s maceration used as antihypertensive (Sweet pulp used as sugar substitute)</td>
<td>Clerodane diterpenes (5α,8α (2-oxokolavenic acid) and 3,4-dihydroxyclerodan-13E-en-15-oic acid, 3,4-epoxyclerodan-13E-en-15-oic acid, 5α,8α(2-oxokolavenic acid) and 3,4-dihydroxyclerodan-13Z-en-15-oic acid) (Cavin et al. 2006; PlantUse, 2020).</td>
</tr>
<tr>
<td><strong>Hyphaene thebaica</strong> (Areceae) F.</td>
<td>Al doam</td>
<td>Palm tree, Gingerbread tree</td>
<td>Wild plant in northern and central Sudan</td>
<td>Antioxidant</td>
<td>Fruit’s decoction used as antihypertensive</td>
<td>Flavanoids (quercetin glucoside, kaempferol rhamnoglycoside and dimethoxy-quercetin) (Eldahshan et al. 2009).</td>
</tr>
</tbody>
</table>
| **Hagenia abyssinica**  
(Rosaceae) S, F | Shaw makkada | African redwood, brayera, cussohagenia, or kousso | Sudan (Equatoria) | Anti-tumor | Powdered fruit used as purgative, anthelmintic and treatment of giardiasis | Kosins (alpha-kosin, kosotoxin and protokosin) - (Woldemariam *et al.* 1992). |
|----------------|----------------|-------------------------------------------------|-----------------|----------|-------------------------------------------------|-------------------------------------------------|
| **Catharanthus roseus**  
(Apocynaceae) H. | Winka | Madagascar periwinkle | Madagascar | Antioxidant | Whole plant maceration used in blood cancer | Alkaloids (vindoline, catharanthine, vinblastine and vincristine) (Ferreres *et al.* 2008). Flavonol glycosides (di- and trisaccharides of kaempferol, quercetin and isorhamnnetin) - (Guo *et al.* 2007). |
| **Boswelia sp**  
(Burseraceae) V. oil (resin), stem bark | Murr hegazee, Luban gawee | Olibanum tree, Frankincense | Sudan (Kassala state), Somalia, Yaman | Inhibition of phosphodiesterase and xanthine oxidase inhibition, Prolylendopeptida | Antiseptic, anthelmintic, antitumor, abscess and hemorrhoid | Stem bark contain: triterpene (11-keto-β-boswellic acid , β-elemonic acid , 3α-acetoxy-11-keto-β-boswellic acid , and β-sitosterol ). Two new stilbene glycosides |
<p>| <strong>Tinospora bakis</strong> (Menispermacea) R. | Irg al-hagar | Ingassana hill in East-south of Sudan. | Antidiabetic, Immumomodulatory effect | Maceration of root used for Wound healing. The macerated roots used for headache | The root contains alkaloids, including protoberberine type alkaloid palmatine, and 2–4% columbin, a diterpenoid furanolactone (Oyen, 2008; Farah et al. 2019). |
| <strong>Capparis decidua</strong> (Capparaceae) F. | Tundub | Central Sudan | Antidiabetic, anthelmintic, antibacterial, antifungal, analgesic, antinociceptive, antirheumatic, hypolipid | Asthma, poultice used for treatment of headache | N-Acetylated Spermidine Alkaloids (14-N-acetylisocodonocaprine and 15-N-acetylcapparisine)-(Ahmad et al. 1992). Hygroscopic alkaloids isolated from roots |</p>
<table>
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<tr>
<th><strong>Plant</strong></th>
<th><strong>Part</strong></th>
<th><strong>Common Names</strong></th>
<th><strong>Activities</strong></th>
<th><strong>Additional Information</strong></th>
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<tr>
<td><em>Hibiscus sabdariffa</em> (Malvaceae)</td>
<td>Fl, S, St, L</td>
<td>Kurkadai</td>
<td>Red sorrel, hibiscus Roselle</td>
<td>Fruit maceration used to treat hypertension and scorpion sting. Seed powder used for ulcer healing, general tonic, antimalarial. Cold cough.</td>
</tr>
<tr>
<td><em>Abrus precatorius</em> (Fabaceae)</td>
<td>S</td>
<td>Hub el-arous</td>
<td>Jequirity, Crab's Eye, Rosary Pea, 'John Crow' Bead, Precatory bean, Indian</td>
<td>Immunomodulator</td>
</tr>
<tr>
<td><strong>Name</strong></td>
<td><strong>Part</strong></td>
<td><strong>Description</strong></td>
<td><strong>Properties</strong></td>
<td><strong>Uses</strong></td>
</tr>
<tr>
<td>----------------------------------</td>
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<td>-------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><em>Citrullus colocynthis</em></td>
<td>Hunzal</td>
<td>Bitter melon, bitter apple and bitter cucumber</td>
<td>Wild plant in several parts of the Sudan</td>
<td>Seed oil used as massage for rheumatoid, vitiligo, external pathogen, hemorrhoid and diabetes. Glycoside (elaterin (cucurbitacin E), elatericin B (cucurbitacin I) and dihydroelatericin B (cucurbitacin L) (Lavie <em>et al.</em> 1964). Cucurbitane-type triterpene glycosides, cucurbitacin E 2-O-beta-D-glucopyranoside, its aglycon, cucurbitacin E and colocynthosides A and B (Yoshikawa <em>et al.</em> 2007).</td>
</tr>
<tr>
<td><em>Cucurbita maxima</em></td>
<td>Garaa</td>
<td>Pumpkin</td>
<td>Several parts of the Sudan</td>
<td>Seed used orally as anthelmintic. Seed’s oil used for skin infection, hair nutrition, prostatitis and benign prostatic hypertrophy (BPH) Phytoestrogen of lignin: secoisolariciresinol glycosides (Stevenson <em>et al.</em>, 2007). Tocopherol (α-tocopherol, γ-tocopherol, and δ-tocopherol). Unsaturated fatty acid (stearic, oleic, linoleic, gadoleic acid) (Sicilia <em>et al.</em> 2003b).</td>
</tr>
<tr>
<td><em>Trigonella foenum-graecum</em></td>
<td>Helbaa</td>
<td>Fenugreek</td>
<td>Several parts of the Sudan</td>
<td>Seed powder used orally as antispasmodic, antidiarrhoea, treatment of dysentery, lactogoge, poultice used for treatment of tumors and hemorrhoid Alkaloid, Trigonelline (SatheeshKumar <em>et al.</em> 2010).</td>
</tr>
</tbody>
</table>
| *Calotropis procera*  
|-----------------------------|-------|------------------------|------------------------------------------|--------------|-------------------------------------------------|-------------------------------------------------|
| *Azadirachta indica*  
(Meliaceae) L.B.S | Neem | Neem, Margosa, Indian lilac | Several parts of the Sudan | Antimutagenic | Bark’s maceration used as antimalaria & vitiligo. Leave’s maceration used as anthelmentic and for measeles. Leaves used as insecticide. | Prenylated flavanones (5,7,4’-trihydroxy-8-prenylflavanone, 5,4’-dihydroxy-7-methoxy-8-prenylflavanone, 5,7,4’-trihydroxy-3’,8-diprenylflavanone, and 5,7,4’-trihydroxy-3’,5’-diprenylflavanone) (Nakahara et al. 2003). |
| *Balanites aegyptiaca*  
(Zygophyllaceae) B, F | Hegleeg, La’loob, Balah alsahraa, Tamr el-abeed | Desert date | Wild plant in several parts Sudan | Antitumor | Bark used to treat vitiligo rheumatoid and gonohorrea. Fruits used for diabetes, constipation and giardiasis. Seed oil used for diabetes’ wound. | Fruit contain: (spirostanol glycoside (balanitin-3, and a new sapogenol (6-methyldiosgenin) a new furostanol saponin (balanitoside) ) (Hosny et al. 1992). Steroidal saponins: (balanitin-6 (28%) and (72%) balanitin-7 (Gnoula et al. 2008). |
| *Acacia nilotica*  
(Fabaceae) Aerial parts | Garad, Sunut | Acacia | Wild plant in several central and northern Sudan | Local anti-inflammatory | Fruit’s maceration used to treat Malaria, hemorrhoid, cough, Dysentery and wound antiseptic. | Sex hormone (3βa-acetoxy-17 beta-hydroxy-androst-5-ene) (Chaubal et al. 2011). |
| *Cassia* | Sunamakaa | Senna, *Alexandrian* | Central and northern | Laxative | Leave and seed powder | Eight compounds were isolated from the leaves |
| **angustifolia** | **Cassia italica** | **Senna** | **Sudan** | **used orally as laxative** (tinnevellin glycoside (I), isorhamnetin-3-O-beta-gentiobioside (II), apigenin-6,8-di-C-glycoside (III), emodin-8-O-beta-D-glucopyranoside (IV), kaempferol (V), aloe emodin (VI), D-3-O-methylinositol (VII), sucrose(VIII).) (Wu et al. 2007). Anthraquinone (sennosides A and B) (Hietala et al. 1987). |
| **Cassia** (Caesalpiniaiceae) L. S | **Senna** | **Sudan** | **used orally as laxative** (tinnevellin glycoside (I), isorhamnetin-3-O-beta-gentiobioside (II), apigenin-6,8-di-C-glycoside (III), emodin-8-O-beta-D-glucopyranoside (IV), kaempferol (V), aloe emodin (VI), D-3-O-methylinositol (VII), sucrose(VIII).) (Wu et al. 2007). Anthraquinone (sennosides A and B) (Hietala et al. 1987). |
| **Solenostemma argel** | **Hargel** | **Argel** | **Northern Sudan** | **Topical anti-inflammatory** Leave powder and maceration used as Carminative, antispasmodic, antidiabetes. |
| **Solenostemma argel** | **Hargel** | **Argel** | **Northern Sudan** | **Topical anti-inflammatory** Leave powder and maceration used as Carminative, antispasmodic, antidiabetes. |
| **Ambrosia maritima** | **Dimsissa, Afseenteen** | **Blood weeds** | **Wild plant in central and northern Sudan** | **Molluscicide** Decoction of whole plant used to treat diabetes, hypertension. Powder used to treat renal pain and stones. Sesquiterpene (damsin, ambrosin and hymenin) (Picman et al. 1986). |
| **Ambrosia maritima** | **Dimsissa, Afseenteen** | **Blood weeds** | **Wild plant in central and northern Sudan** | **Molluscicide** Decoction of whole plant used to treat diabetes, hypertension. Powder used to treat renal pain and stones. Sesquiterpene (damsin, ambrosin and hymenin) (Picman et al. 1986). |
| **Artemisia annua** | **Sheeh** | **Sweet wormwood** | **Egypt and North** | **Antimalarial, anticancer, antiviral,** Whole plant used for treatment of Gardiasis, diabetes, athelmentic, Sesquiterpene lactones: artemisinin and oil-soluble derivatives of artemisinin |
|---|---|---|---|---|---|---|
| **Nigella sativa** (Ranunculaceae) S. | **Kammon aswad** | **Black cummin** | **Northern Sudan and Ethiopia** | **Anti-inflammatory, antihyperglycemi, for lipid peroxidation and antihyperlipidimi, anticonvulsant, antioxidant, antibacterial, antimutagenic** | **Seeds used for weight gain and to treat diabetes hypertension, gardiasis, hair fall and ulcer.** | **Thymoquinone (Hosseinzadeh and Parvardeh 2004; Ahmed et al. 2006; Hosseinzadeh et al. 2007; Chehl et al. 2009; Pari and Sankaranarayanan, 2009; Al-Naqeep et al. 2009; Ragheb et al. 2009). Essential oil: p-cymene and thymoquinone (Kokoska et al. 2008).** |
Phenolic principles: vanillic acid (Bourgou et al., 2008).

| **Zingiber officinale**  
| (Zingiberaceae)  

| **Croton zambesicus**  
| (Euphorbiaceae)  
| H. | Umm geliagla, Umm guleela ام عليلة | Nubba mountain | Vasorelaxant | Herbal tea used to treat hypertension, diabetes. Dandruff, pulmonary infection and malaria | Trachylobane diterpenes (Baccelli et al. 2007) |

| **Guiera senegalensis**  
| (Combretaceae)  
<p>| L. | Ghibaish الغبيش | Moshi medicine | Kordofan | Antifungal, antimalarial | Herbal tea used to treat hypertension, diabetes, spasm febrifuge. shower for muscle relaxation. | Methoxylated naphthyl butenone, guieranone A (Silva and Gomes, 2003). Beta-carboline alkaloids: harmalan (dihydroharman), |</p>
<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
<th>Genus</th>
<th>Country</th>
<th>Activity</th>
<th>Compounds</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Nauclea latifolia</em></td>
<td>Karmadodaa</td>
<td><em>Nauclea</em></td>
<td>Nuba mountain</td>
<td>Anti-GST (Glutathione S-Transferases) and antifungal</td>
<td>Maceration used for hypertension and cold cough</td>
</tr>
<tr>
<td><em>Kigelia africana</em></td>
<td>Umm shotor</td>
<td><em>Kigelia</em></td>
<td>Sudan</td>
<td>Anti-inflammatory</td>
<td>After burning, ash poultice used to treat Breast cancer</td>
</tr>
<tr>
<td>(Bignoniaceae)</td>
<td>Kigelia</td>
<td></td>
<td></td>
<td></td>
<td>Verminoside, iridoid and polyphenols; verbascoside (Picerno et al. 2005).</td>
</tr>
<tr>
<td><em>Aristolochia bracteolata</em></td>
<td>Um galagel</td>
<td><em>Aristolochia</em></td>
<td>Wide spread in Sudan</td>
<td>Antibacterial, antifungal, anti-arthritis, hypotensive, hypothermia, antioxidant, anti-inflammatory, antihyperglycemic and antihyperlipidemic activities.</td>
<td>Poultice for tumor and scorpion sting</td>
</tr>
<tr>
<td>(Aristolochiaceae)</td>
<td>Scorpion root</td>
<td></td>
<td></td>
<td></td>
<td>Aristolochic acids and esters, Naristolactams, aporphines, protoberberines, isoquinolines, benzylisoquinolines, amides, lignans, biphenyl ethers, coumarins, tetralones, terpenoids, benzenoids (Abdelgadir et al. 2015; Nandhini et al. 2017;</td>
</tr>
<tr>
<td>Species</td>
<td>Common Name</td>
<td>Location</td>
<td>Activity</td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
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</tr>
<tr>
<td><em>Striga hermonthica</em></td>
<td>Al-buda Witchweed</td>
<td>Sudan (Parastic in sorghum)</td>
<td>Antimalarial Maceration of whole plant used for cancer</td>
<td>Mathew <em>et al.</em> 2020.</td>
<td></td>
</tr>
<tr>
<td><em>(Scrophulariaceae)</em> H.</td>
<td></td>
<td></td>
<td></td>
<td>Saponins, tannins, flavonoids, volatile oils and cardiac glycosides (Okpako and Ajaiyeoba, 2004).</td>
<td></td>
</tr>
<tr>
<td><em>Sterculia setigera</em></td>
<td>Tirtir and Baroat</td>
<td>Karaya gum tree</td>
<td>Sudan Dichlormethane:Et hanol extract revealed remarkable tyrosinase inhibitory activity and high antiproliferative activity against human colon adenocarcinoma HT29</td>
<td>(i) Antihypertensive. (ii) Bark used in treating jaundice, and bilharzia “Five known compounds namely; procyanidins as dimer B, trimer C1 and tetramer, 3,4-dimethoxyphenol β-D-apiofuranosyl (1″→ 6″)- β-D-glucopyranoside and (+)-catechin were identified, in addition to the isolation and characterization of lupeol”- (Al Safi, 2006; Alshambaty <em>et al.</em> 2020).</td>
<td></td>
</tr>
<tr>
<td><em>(Sterculiaceae)</em> B.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><em>(Salvadoraceae)</em> St.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Lupinus termis**  
(Fabaceae) S. | Turmos | Lupin | Several parts of the Sudan | Food protein supplement | Diabetes, skin infection | Lysine and Methionine  
(Gabrial and Morcos, 1976). |
| **Adansonia digitata**  
(Bombacaceae) F, R, S, B | Tabaldi, Gunglaiz التبلدى، القنقليز | Baobab | Kordofan | Food supplement | Fruit’s juice used to treat diakorhea. Poultice of root used topically to increase penile size. | Proteins: valine (phenylalanine, tyrosine, isoleucine, lysine, arginine, threonine, cysteine, methionaline and tryptophan) and mineral (calcium, iron, potassium, magnesium, manganese, molybdenum, phosphorus, and zinc)  
(Yazzie et al. 1994) |
| **Brassica nigra**  
(Brassicaceae) S. | Khardal | Black Mustard | Mediterranean sea and several parts of the Sudan | Vasodilatation | Cold cough, vasodilator. | Mustard oil contains (allylisothiocyanate)  
(Bánvölgyi et al. 2004). |
| **Ricinus communis**  
(Euphorbiaceae) S. | Khairwi | Castor | Several parts of the Sudan | Purgative, antibacterial and antifungal, cytotoxicity, antioxidant, insecticidal, antiasthmatric, anti-inflammatory | Seed oil used as laxative, hair food. With same volume of fenugreek oil, castor oil used topically to increase buttock size. | Alkaloids, terpenoids, flavonoids, benzoic acid derivatives, coumarins, tocopherols, terpenoids and fatty acids (Ribeiro et al. 2016). |
| **Aloe sp** | Sabar | Aloe | India, South | Antioxidant, analgesics, anti-inflammatory | Juice used topically for wound healing. | β- cumaric acid, Ascorbic acid, pyrocatechol and |
| **Eugenia caryophyllus**  
(Myrtaceae) F. | Guronful | Clove | India | Antioxidant, Antiviral, anti-herpes simplex virus, antimicrobial, antifungal, antiviral activity, anti-inflammatory, cytotoxic, insect repellent and anaesthetic | Topical analgesic and carminative | Essential oils (eugenol, β-caryophyllene, cinnamaldehyde, carvacrol, thymol, α-humulene and eugenyl acetate) (Jirovetz et al. 2006; Chaieb et al. 2007; Tragoolpua and Jatisatienr, 2007). |
| --- | --- | --- | --- | --- | --- | --- |
| **Santalum album**  
|---|---|---|---|---|---|---|
| **Acacia seyal**  
(Fabaceae) St. F | Talih | Gum Arabic | Sudan | Antioxidant, Attenuate the development of nephropathy in type I diabetes rat, Inhibits absorption of glucose in the intestine, reduce body weight. | Fume used for rheumatoid, Fruit’s maceration used as antiseptic, Used as a carrier of drugs | Polysaccharides (rhamnose and glucuronic acid, arabinose and 4-O-methyl glucuronic acid), The amino acids (hydroxyproline and serine) (Williams and Phillips, 2009; Musa et al., 2020) |
| **Hordeum vulgare**  
(Poaceae) F. | Shaeir baladi | Barley | Several parts of the Sudan | Diuretic, Fatty acid synthase inhibition, glucose tolerance effect, Laxative, hypocholesterolemic, lower the fasting plasma glucose and glycosylated hemoglobin | Diabetes and renal stone | new cyanogenic glycoside( 2-β-glucopyranosyl-oxy-3-methyl-(2R)-butyronitrile) (Erb et al. 1979; Rajesh et al. 2016). |
| **Tribulus terrestris**  
(Zygophyllaceae) H. | **Dressa**  
(الضريرة) | **Puncture vine** | **Wild plant wide spread in Sudan** | **Cytotoxic** | Maceration used as diuretic and astringent. | Furostanol saponins from fruits (terrestroside A, and terrestroside B, together with three known compounds, chloromaloside E , terrestrinin B and terrestroneoside A) (Wang *et al.* 2009). |
|---|---|---|---|---|---|---|
| **Grewia tenax**  
(Tiliaceae) F. R Guddaim and Basham. | **White Cross berry** | **Northern and Middle of Sudan** | **Fruit juice has Antioxidant activity** | **Fruit is used for malaria and anemia.**  
**Root is used to treat tonsillitis** | Proximate composition of fruit is carbohydrate was 66.59%, while moisture, crude fiber, ash, crude protein and crude fat were 11.72%, 9.41%, 4.12%, 7.68% and 0.48%, respectively (Al Safi, 2006; Aboagarib *et al.* 2014; Suliman *et al.* 2018). |
| **Prunus mahaleb**  
(Rosaceae) S. Mahlab | **Lucie cherry** | **Epirus (cultivated, not wild species)** | **Sedative and vasodilator, Cytoprotective and hypolipidemic effect.** | **Scenting, anti-diabetes, renal stone, gout, rheumatoid, cough.** | Herniarin and herniarin glycoside, dihydrocoumarin, coumarin, amygdalin, prunasin, flavonoids, isoflavones, bioflavonoids, anthocyanins, proanthocyanins, vitamins, trace elements (Al-Said and Hifnawy, 1986; Ferramosca *et al.* 2019). |
<table>
<thead>
<tr>
<th><strong>Terminalia brownii</strong>  (Combretaceae)St.</th>
<th>Sobag, Darout, Shaf, Subaraya (صباغ، دroat، صبارة، شاف)</th>
<th>......</th>
<th>Wild plant wide spread in Sudan</th>
<th>Crude extract and its solvent fractions showed a significant antihyperglycemic activity in Streptozocin induced diabetic mice</th>
<th>Fume used for rheumatoid</th>
<th>Tannins, saponins, flavonoids, polyphenols, terpenoids, steroids, phytosterols and coumarins (Alema et al. 2020)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cymbogon citratus</strong>  (Poaceae) H.</td>
<td>Hashishut al-lemon (حشيشة الليمون)</td>
<td>Lemon grass</td>
<td>India and Kongo</td>
<td>Free Radical Scavengers and Antioxidants</td>
<td>Maceration of the whole plant used for renal stone, as lactogoge and antitumor.</td>
<td>Volatile oil (Isoorientin, isocaparin, swertiajaponin, isoorientin 2′-O-rhamnose, orientin, chlorogenic acid, and caffeic acid) (Cheel et al. 2005; Warrag et al. 2014).</td>
</tr>
<tr>
<td><strong>Anogeissus leiocarpus</strong>  (Combretaceae) S. B.</td>
<td>Sahab (صهب)</td>
<td>African birch; Bambara: Ngál ma (ساد)</td>
<td>Sudan [Southern Kordofan (Nuba mountain), Southern Darfur, and Blue Nile state].</td>
<td>Antifungal</td>
<td>Seed powder used orally for Giardiasis. Oral maceration of bark used for hemorrhoids</td>
<td>The root contains: Al, K, Fe, V, Na, Sc, Ca, Br, Zn, Mg, La, Cs, and C. The bark contains L, Sn, Co, Mn, Au and 3,3,4 trimethoxyflavellagic acid while the stem is reported to contain 4′-O-β-D-glucoside (0.2 PPM ) and fluoride</td>
</tr>
</tbody>
</table>
**Cinnamomum camphora** (Lauraceae) V. oil

<table>
<thead>
<tr>
<th><strong>Kafur</strong></th>
<th><strong>Camphor</strong></th>
<th><strong>Egypt</strong></th>
<th><strong>Anti-inflammatory agent, antibacterial.</strong></th>
<th><strong>Oil used as massage for joint pain</strong></th>
<th><strong>sesquiterpene (cadinol and epicubenol)</strong> (Takaoka, 1976; Chen et al. 2020)</th>
</tr>
</thead>
</table>

**Acacia Senegal** (Fabaceae) Gum.

<table>
<thead>
<tr>
<th><strong>Hashab</strong></th>
<th><strong>Gum Arabic</strong></th>
<th><strong>Wild plant wide spread in Sudan</strong></th>
<th><strong>Antioxidant, Inhibits absorption of glucose in the intestine, Reduce body weight and fat deposition</strong></th>
<th><strong>Gum used for ulcer, diarhoea, carminative, used as a carrier of drugs</strong></th>
<th><strong>Polysaccharides (rhamnose and glucuronic acid, arabinose and 4-O-methyl glucuronic acid), The amino acids (hydroxyproline and serine)</strong> (Williams and Phillips, 2009, Musa et al. 2020)</th>
</tr>
</thead>
</table>


**Discussion**

In this study, the popularly used species by natives were found to include *Solenostemma argel* as antispasmodic (El Tahir et al. 1987), *Trigonella foenum-graecum* as nutrient and lactagogue (Shawahna et al. 2018), *Acacia* spp as tanning agent, incense of flue and antimicrobial, *Nigella sativa* as diuretic, antidiabetic and hypotensive agent (Ahmed et al. 2006) and *Hibiscus sabdariffa* which commonly used beverage drink and for hypertension (Alsayed et al. 2020). All of which known to contain mixture of phenolic, flavonoids, terpenoids and sterols phytoconstituents through which these group of natural products exhibit their wide range of therapeutic values. As mention in the text, sporadic use of different parts of some other medicinal plants are used to treat various health complains and symptoms. Aromatic herbs rich in volatile oils as *Mentha* spp (Adam et al. 1998), *Cymbopogon* spp (Warrag et al. 2014), Fennel (Parejo et al. 2004) Ginger (Awad et al. 2012; Eisa et al. 2020; Osman et al. 2020) find the top priority as spices and flavors with medicinal antispasmodic, expectorant, anti-inflammatory and antimicrobial activities. Traditional medicine based on knowledge, theories, beliefs and experiences indigenous to different
areas using various aspects of flora of the Sudan have been documented (Elghazali et al., 1987, 1994, 1997, 2004). Poisonous plants of the Sudan (Elghazali et al., 2008) and scattered scientific research studies on medicinal and aromatic plants were conducted to have the rightful place in health care as herbal pharmaceutically produced medicine or nutraceutical and dietary supplements in country economy and trade as for export, culinary purpose, as spice, condiments, fruits and vegetables (Ahmed and Mirghani 2000; Ahmed et al. 2010; Khalid et al. 2012;). Medicinal plants (wills or cultivated) such as Gum Arabic, Senna, Hibiscus, Lawsonia, Capsicum, Coriander, Nigella, Tamarindus and Adansonia are collected normally in small quantities for the domestic market and/or in large quantities for export purposes. (Eman, 2007). However, the interrelated issues of quality, safety and efficacy, the incorporation of medicinal plants in modern medical practices is quite rational since the integrated properties of such plants especially edible ones with their biological activity make their use for control and prevention of diseases possible and recommendable.

**Conclusion:**
Eighty-six plants and herbs are reported in this study. They are distributed in Fifty-one families. The popularly used species by natives were found to include *S. argel* as antispasmodic, Trigonella as nutrient and lactagogue, *Acacia* spp as tanning agent, incense for flue and antimicrobial, Nigella seeds as diuretic, antidiabetic and hypotensive agent and Hibiscus which commonly used beverage drink and for hypertension, *Mentha* spp, Cymbopogon, Fennel, Ginger as spices and flavours with medicinal antispasmodic, expectorant, anti-inflammatory and antimicrobial activities. All of which known to contain mixture of phenolic, flavonoids, terpenoids, sterols and volatile oils phytoconstituents through which these group of natural products exhibit their wide range of therapeutic values. The highest numbers of plants are found belong to family Lamiaceae, and Apiaceae. It could be concluded and recommended that, on considering quality, safety and efficacy of herbal products their specified use in combination with conventional therapy will no doubt produce an add-on therapeutic value to prevent or control diseases.

**Declarations of Competing Interest**
None.
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