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Treatment of Skin Diseases in the Sudan Using Tree Materials

Abstract: From the herbalists' experience in Khartoum State, central Sudan, and literature reviewed in the field of plant medicine, twelve botanical treatments for eight skin diseases are documented. These are highlighted by classification, botanical characterization, application and usage, besides chemical composition. The trees which are dealt with include: *Acacia nilotica* (L.) Willd.ex Del., *Azadirachta indica* A. Juss, *Balanites aegyptiacal* (L.) Del, *Calotropis procera* (Ait.) Ait.f, *Ficus carica* L., *Hyphaene thebaical* (L.) Mart., *Juniperus communis* L., *Khaya senegalensis* (Desr.) A. Juss, *Lawsonia inermis* L., *Olea europa* L., *Sclerocarya birrea* (A.Rich.) Hochst., *Ziziphus spina-christi* (L.) Willd.

Keywords: Sudan, Khartoum, tree materials, skin diseases, treatment.

Introduction

Trees, besides their many other benefits to man form a valuable source of medicine. The author, during his study and teaching in the field dendrology, has learned about the uses and values of many tree species. He has also selected well-known herbalists in Khartoum State, central Sudan, to report on the recipes used in treating skin diseases. The present study documents the public herbalists' experience, with the addition of botanical and chemical notes on the uses of trees in skin disease treatment.

Methodology

A survey of the experience of two herbalists in the area was carried out. The botanical treatments they use for treating different skin diseases were

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معالجة الأمراض بواسطة منتجات الأشجار في السودان

كمال فضل السيد الخليفة

المستخلص: من خلال مسح عام لتجارب العشابين في ولاية الخرطوم، أواسط السودان والمراجع التي قمنا بمراجعتها في مجال العلاج النباتي، تم توثيق اثني عشر علاجاً نباتياً. شمل التوثيق، التصنيف، الخصائص المرفولوجية للأشجار، بالإضافة لطريقة التحضير والإستخدام والتكوين الكيميائي. والنباتات التي شملها البحث هي السنط، النيم، الهجليج، العشار، نخيل الدوم، العرعر، المهوقني، الحناء، الزيتون، الحميض والسدر.

كلمات مدخلية: السودان، الخرطوم، منتجات أشجار، أمراض جلدية، علاج.

singled out. These were proved to be effective for tens of patients in the area. Literature cited in plant medicine was consulted. These included Al Antaki (1927), Sahni (1968), Abuzaid (1986), Sufi (without date) and Elgazali (1998). The trees were classified according to their families in the plant kingdom, and briefly described by their characteristic features, mainly consulting Elkhalfifa (1996) and Al Amin (1990). Treatments for different skin diseases, botanical classification and chemical composition were documented.

Results

Plant materials from twelve tree species were found, according to the present survey, to have curative effects on different skin diseases. The tree species have been arranged alphabetically according to their scientific names. Local names, families and the characteristic botanical features are given. In addition, short notes are given on the treatment that could be achieved, part used, chemical constituents and method of preparation and usage.

1. *Acacia nilotica* (L.) Willd. ex Del.**Local name:** Sunut**Family:** Mimosoideae**Botanical features:** The tree is characterized by long paired spines, small yellow flowers that cluster in heads, and necklace like dry fruits;**Treatment:** Healing wounds, fungal infections and skin inflammation;**Part used:** Fruit;**Chemical constituents:** Fruit contains tannins (>20% when fresh), gallic, digallic, and fatty acids, in addition to phenolic compounds and flavonoids (Sahni, 1968; Elghazali *et al.* 1998)**Method of preparation and usage:** The unripened fruits are squeezed on the wound or the infected site.**2. *Azadirachta indica* A. Juss****Local name:** Neem**Family:** Meliaceae**Botanical features:** The tree is readily distinguished by the compound imparipinnate leaves with serrate leaflet margins, whitish clustered flowers, and small yellowish succulent fruit**Treatment:** Eczema, chicken pox, and general skin diseases**Part used:** Leaves**Chemical constituents:** Azaridine, limonoids, flavonoids, tannins (Elghazali *et al.* 1998)**Method of preparation and usage:** Leaf powder is used as a poultice.**3. *Balanites aegyptiaca* (L.) Del****Local name:** Heglig**Family:** Balanitaceae**Treatment:** Healing skin ulceration**Part used:** Seeds**Chemical constituents:** Fruit and seed contain saponins, proteins, sugars, vitamins and mineral salts (Elghazali *et al.* 1998)**Method of preparation and usage:** Crushed seeds are used as a poultice.**4. *Calotropis procera* (Ait.) Ait. f.****Local name:** Ushar**Family:** Asclepiadaceae**Botanical features:** Small tree with very large simple leaves oppositely arranged, and very large ovate, ball-like fruits;**Treatment:** Skin ulceration**Part used:** Milky sap of the plant**Chemical constituents:** The milky sap contains glycosides, calotropin and uscharin (Elghazali *et al.* 1998)**Method of preparation and usage:** The milky sap is used as an ointment on the infected part.**5. *Ficus carica* L.;****Local name:** Teen**Family:** Moraceae**Botanical features:** A small tree with 3-5 lobed leaves, unisexual flowers and large succulent fruits with many minute seeds**Treatment:** Healing of wounds and burns;**Part used:** Fruits**Chemical constituents:** proteins, sugars, vitamins (Sukkar, 1985)**Method of preparation and usage:** The dried fruits are used as a poultice; an ointment is made from the milky sap.**6. *Hyphaene thebaica* (L.) Mart.****Local name:** Dom**Family:** Palmae**Botanical features:** A very long palm characterized by the dichotomous branching of the stem, large fan-shaped compound leaves, and large wooden brown fruit**Treatment:** Wound healing**Part used:** Fruit**Chemical constituents:** tannins, steroids, flavonoids, glycosides (Elghazali *et al.* 1998)**Method of preparation and usage:** The dried fruit is used as a poultice.**7. *Juniperus communis* L.****Local name:** Arar**Family:** Cupressaceae**Botanical features:** An evergreen fragrant coniferous tree with simple alternate sessile leaves, and small spherical fruits

Treatment: Eczema and wound healing

Part used: Seeds, leaves

Chemical constituents: A volatile oil (0.5 – 1.5%) composed of many compounds including pinene, camphene and cadinene, plus some alcoholic compounds (Elghazali *et al.* 1998)

Method of preparation and usage: The ground seeds are boiled in water for ten minutes and used as a poultice; powdered leaves are rubbed on the infected surface.

8. *Khaya Senegalensis* (Desr.) A. Juss

Local name: Mahogany

Family: Meliaceae

Botanical features: A large tree of compound pinnate leaves, and large spherical capsular fruits

Treatment: Healing skin ulcerations

Part used: Twigs and leaves

Chemical constituents: The whole plant contains non-volatile oil and siscoterpine compounds (Elghazali *et al.* 1998)

Method of preparation and usage: Twigs and leaves are crushed and used as a poultice.

9. *Lawsonia inermis* L.

Local name: Henna

Family: Lythraceae

Botanical features: A small multi-branched evergreen tree with simple lanceolate leaves and small spherical capsular fruits

Treatment: Healing scaly and fissured feet, and bacterial and fungal infection

Part used: Leaves

Chemical constituents: Leaves contain tannins, lawsone, fats, aromatic and volatile oils, steroids and flavonoids (Elghazali *et al.* 1998)

Method of preparation and usage: Powdered dried leaves are used as a poultice.

10. *Olea europea* L.

Local name: Zayton

Family: Oleaceae

Botanical features: An evergreen tree with simple lanceolate leaves, white flowers and oval drupaceous fruits with different colors from green to black

Treatment: Healing of wounds and burns;

Part used: Oil

Chemical constituents: The oil contains 70—80% oleic acid, tannins and some linoleic, palmitic and stearic acids and glycerides (Sufi *et al.* without date, Elghazali *et al.* 1998);

Method of preparation and usage: The infected site is gently covered with a mix of the oil and egg albumin.

11. *Scelerocarya birrea* (A. Rich.) Hochst.

Local name: Hommaid

Family: Anacardiaceae

Botanical features: The tree is characterized by the compound imparipinnate leaves that cluster at the end of branches, and large succulent, semi-spherical, edible fruit;

Treatment: Healing wounds

Part used: Bark

Chemical constituents: The whole plant contains prothyanidins and gallic acid (Elghazali *et al.* 1998)

Method of preparation and usage: Powdered bark is put on the wound.

12. *Ziziphus spina-christi* (L.) Willd.

Local name: Sidr

Family: Rhamnaceae

Botanical features: The tree is readily distinguished by the three prominent basal nerves of its simple leaves, zigzagging whitish twigs, and the small spherical reddish fruits

Treatment: Curing and preventing fungal infection;

Part used: Leaves

Chemical constituents: Leaves contain saponins, sterols, and triterpenes (Elghazali *et al.* 1998)

Method of preparation and usage: The leaf powder is rubbed on the area of infection.

Discussion

Traditional medicine is part of the heritage of different nations. It is the ground from which chemical drugs of today evolved. As most drugs have harmful side effects, many people try to return to nature, especially when natural drugs have proved to be effective. The present study tries to document

treatments of skin diseases in Khartoum State, central Sudan, through herbal drugs. Skin diseases were chosen as their botanical treatments are simple, external, so not harmful, and overcome the problem of dosage determination which is the general criticism of such treatment. Khartoum State has been selected as it represents Sudanese culture and tradition because of its central position and dense population. Such treatments have proved to be effective for tens of people in the area, without any mentioned harmful side effects. Moreover, according to the literature consulted, herbalists have been using such treatment for decades. The present study could be considered as a documentation of past and present botanical treatment for different skin diseases in Khartoum State. The documentation included fourteen plant preparations from twelve tree species, related to eleven plant families, that have been used for treating eight skin diseases.

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