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Traditional wild medicinal plants

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Cymbopogon proximus Hochst. ex A. Rich. حلفابر

1. Names & Synonyms

***Cymbopogon proximus* Hochst. ex A. Rich**. (1, 2).

Family: Gramineae (Poaceae) (2, 3).

Syns.: (3)

- *Andropogon proximus* Hochst.
- *Andropogon sennarensis* Hochst.
- *Andropogon jwarancusa* Jones var. *proximus* Hochst. ex A. Rich.
- *Andropogon jwarancusa* Jones var. *sennarensis* Hochst.
- *Cymbopogon sennarensis* Hochst.

Arabic: Halfa bar حلفابر, Mahareb محاريب (1, 4).
English: Camel grass, camel's hay, geranium grass, Scenanth (1, 2).

2. Geographical distribution

Confined to the desert east of the Nile including that of the Sinai Peninsula (3), the southern eastern desert and Gebel Elba (1).

3. Parts used for medicinal purposes

Aerial parts of the plant (1).

4. Major chemical constituents

-Essential Oil (4, 5): Piperitone, *β*-elemol, *α*-eudesmol, *β*-eudesmol, *β*-elemene, eudesm-7(11)-en-4-ol, D-limonene,2-, *α*-terpineol, *τ*-cadinol, terpinolene, *β*-selinenol, 3-cyclohexen-1-one, 2-isopropyl-5-methy, 4-carene, shyobunol, cadina-1(10), 4-diene, (−)-guaia-6,9-diene and *β*-caryophyllaneare are the main components, where other minor components also considered such as thymol and camphene.

-Sesquiterpenoids: Bicyclic sesquiterpene diol (proximadiol) is the main bioactive metabolite in addition to 5*α*-hydroxy-*β*-eudesmol, 1*β*-hydroxy-*β*-eudesmol, 1*β*-hydroxy-*α*-eudesmol, 5*α*-hydroperoxy-*β*-eudesmol and 7*α*, 11-dihydroxycadin-10(14)-ene(6, 1).

5. Traditional medicinal uses

A. Diuretic (5, 6).
B. Antispasmodic (5, 6).
C. Renal colic pain killer (7, 8).
D. Removal of small stones from the urinary tract (7).
E. Antipyretic in fevers (7).

***C. proximus* is a traditional medicinal plant for use in the specified indications exclusively based upon long-standing use.**

6. Herbal preparations correlated to medicinal use

1. **Weak infusion in the form of "teas"** (1, 8):

Pour freshly boiled water on 2 teaspoonful of the herb in a cup; cover the cup with the lid and infuse for 5 minutes. Drink it sweetened if desired.

2. **Decoction:**

Pour cold water on 2 teaspoonful of the entire dried herb or dried leaves and boil, simmer for 10 minutes. Pour into a cup and drink it sweetened if desired (5, 8).

3. **Herbal extract in a pharmaceutical dosage form:**

The pharmaceutical form should be described by the Pharmacopoeia full standard term.

7. Posology and method of administration correlated to medicinal use

Preparation 1,2: 3 cups daily (8).

Preparation 3: 3 times daily.

Method of administration: oral use.

8. Contraindications

Hypersensitivity to active substances and to other plants of the same family.

9. Special warnings and precautions for use

If the symptoms worsen during the use of the medicinal product, a doctor or a pharmacist should be consulted.

10. Interactions with other medicinal products and other forms of interaction

None reported.

11. Fertility, pregnancy and lactation

-*C. proximus* is not recommended during pregnancy <<see section 15. Relevant biological activities >>.

-Safety during lactation has not been established. In the absence of sufficient data, the use during lactation is not recommended.

-No fertility data available.

12. Effects on ability to drive and use machines

No studies on the effect on the ability to drive and use machines have been performed.

13. Undesirable effects

-None known.

-If adverse reactions occur, a doctor or a pharmacist should be consulted.

14. Overdose

No case of overdose has been reported.

15. Relevant biological activities

- The aqueous extract (5%) of *C. proximus* (CP) was injected in male Wistar albino rats at a dose of 1.5 ml/100 g body weight/day for 10 days. The results obtained suggest that CP has a significant protective effect against ethylene glycol-induced nephrolithiasis in rats (9).
- New herbal beverages from *Foeniculum vulgare* and *C. proximus* were tested for inhibiting or preventing calcium oxalate crystals formation. The results indicate that the inhibition efficiency of formulated beverages from *F. vulgare* and *C. proximus* on calcium oxalate renal stone formation in rats increased gradually through rising the ratio of *C. proximus*. Therefore, it was recommended that intake two or three cups of beverages D or E (0.5:1.5% and 0.0:2.0% from *F. vulgare* and *C. proximus*, respectively) will adjust the levels of urinary risk factors, marker enzymes, and kidney functions when divided into two or three times a day (10).

- The prophylactic effect of *C. proximus* on Sulfadimidine (200mg/kg) induced urolithiasis in rabbits was investigated. *C. proximus* alcoholic and aqueous extracts (330mg/kg) were given orally for 10 days. Blood and urine samples were collected from rabbits on the 10th day. The results recorded a significant decrease in serum creatinine, urea, uric acid and crystalluria in *C. proximus* groups compared to sulfadimidine treated group. It was concluded that *C. proximus* have a nephroprotective and antiurolithiatic effects against sulfadimidine induced crystalluria (11).
- Evaluation of the congenital malformation of proximol in pregnant albino rats during gestation period was done. The virgin female rats were mated with male rats and the pregnant rats were orally administered a human equivalent dose (0.05mg/kg) of Proximol from 5th-20th gestation day. At day 20 of pregnancy, all rats were anesthetized to obtained maternal and fetal data. The treatment group displayed some disorders, which can be summarized as growth retardation, external anomalies, embryonic resorption, and skeletal malformation. It was concluded that the oral administration of Proximol resulted in embryonic abnormalities and skeletal malformations (12).
- During admistration of Proximol (*C. proximus*) (0.05mg/ kg) as herbal drug to the pregnant albino rats during the gestation period, the drug will pass to embryos through placenta causing several implications (13).
- The 70% ethanolic extract and its fractions (petroleum ether, chloroform and ethyl acetate) were evaluated for their antispasmodic effect. The most potent fraction is petroleum ether which produced full inhibition by the least dose. Based on the results obtained, the presence of specific sesquiterpene in *C. proximus* justified the use of this plant as antispasmodic, nephrolithiasis, renal colic, helmenthiasis, diuresis, inflammation of prostate and as antipyretic (14).

16. Additional information:

Presence of moisture, ash, crude fiber, crude protein, crude lipid and total carbohydrates (11).

17. Date of compilation/last revision

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Reference

1	Batanouny, K. H. (1999). Wild Medicinal Plants in Egypt. (With contribution: E. Aboutabl, M. Shabana & F. Soliman). Academy of Scientific Research and Technology, Egypt. The World Conservation Union (IUCN).
2	Boulos, L. (2000). Flora of Egypt, Al Hadara Publishing, Cairo, Egypt.
3	Saleh, I. A. and Hegazy, M. E. F. (2018). *Cymbopogon proximus*. In: Egyptian Encyclopedia of Wild Medicinal Plants, 6, 390-399. Academy of Scientific Research and Technology, Cairo, Egypt.
4	Malin, M. A., Ali, M. M. and Ramadhani, A. M. (2018). GC-MS analysis and antimicrobial activities of *Cymbopogon proximus* essential oil and phytochemical screening of its crude extracts. *Journal of Medicinal Plants Studies*, 6(4), 117-122.
5	El-Tahir, K. E. H. and Abdel Kader, M. S. (2008). Chemical and pharmacological study of *Cymbopogon proximus* volatile oil. *Research Journal of Medicinal Plants*, 2, 53-60.
6	El-Askary, H. I., Meselhy, M. R., Galal, A. M. (2003). Sesquiterpenes from *Cymbopogon proximus*. *Molecules*, 8, 670-677.
7	Selim, S. A. (2011). Chemical composition, antioxidant and antimicrobial activity of the essential oil and methanol extract of the Egyptian lemongrass *Cymbopogon proximus* Stapf. *Grasasy Aceites*, 62(1), 55-61.
8	Conservation and Sustainable Use of Medicinal Plants in Egypt, National Surveys. (2016). UNDP, GEF, ASRT and NRC, vols. (1-5).
9	Warrag, N. M., Tag Eldin, I. M. and Ahmed, E. M. (2014). Effect of *Cymbopogon proximus* (Mahareb) on ethylene glycol-induced nephrolithiasis in rats. *African Journal of Pharmacy and Pharmacology,* 8(17), 443-450.
10	Ibrahim, F. Y. and El-Khateeb, A. Y. (2013). Effect of herbal beverages of *Foeniculum vulgare* and *Cymbopogon proximus* on inhibition of calcium oxalate renal crystals formation in rats. *Annals of Agricultural Science*, 58(2), 221–229.
11	El-Nabtity, S. M., Abdllatief, S. A., Al-Attar, S. R. and Taha, S. M. (2019). Antiurolithiatic effect of *Cymbopogon proximus, Alhagi Maurorum, on* Sulfadimidine induced urolithiasis in male New Zealand rabbits. *Mansoura Veterinary Medical Journal,* 20, 1, 14-21.
12	Abdelrahman, H. A., Omar, A. R. and Salah EL-Din, E. Y. (2017). The impact of Proximol (*Cymbopogon proximus*) intake on pregnant albino rats and their fetuses during gestation period. *Int. J. Morphol*., 35(2), 500-505.
13	Omar, A. R., Salah El-Din, E. Y. and Abdelrahman, H. A. (2016). Implications arising from the use of *Cymbopogen proximus;* proximal on placenta of pregnant Albino rats. *Brazilian Archives of Biology and Technology,* 59. https://doi.org/10.1590/1678-4324-2016160165
14	Khalafalla, E. B., Sami, Z. A. and Khalid, A. (2015). Chromatographic profiling of *Cymbopogon proximus* antispasmodic fraction(s). Conference: 16th NAPRECA Symposium, Arusha, Tanzania.