

Egyptian Herbal Monograph

Volume 2

Medicinal plants used in Egypt

Egyptian Drug Authority (EDA)

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Foeniculum vulgare Mill.

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1. Names & Synonyms (1)

Foeniculum vulgare Mill.

Family: Apiaceae (Umbelliferae).

Syns: *Anethum foeniculum* Clairv., *A. foeniculum* L., *A. rupestre* Salisb., *Feniculum commune* Bubani., *F. azoricum* Mill., *F. capillaceum* Gilib., *F. dulce* DC., *F. foeniculum* L. H. Karst., *F. officinale* All., *F. panmorium* DC., *F. piperitum* DC., *F. sativum* Bertol., *Ligusticum divaricatum* Hoffmannsegg et Link, L., *Foeniculum* Crantz., *Meum foeniculum* L. Spreng., *Ozodia foeniculacea* Wight et Arn., *Selinum foeniculum* L. E.H.L.Krause.

Arabic: Shamar شمر

English: Fennel

2. Parts used for medicinal purposes

Dried ripe fruits (2).

3. Major chemical constituents (3)

- **Essential oil:** *trans*-anethole (+)-fenchone, estragole (methylchavicol), limonene, *p*-anisaldehyde, α -pinene and α -phellandrene.
- **Phenolic acids:** rosmarinic acid and caffeoylquinic acid derivatives.
- **Flavonoids:** eriodictyol-7-rutinoside, quercetin-3-rutinoside.
- **Others:** triterpenes, smaller terpenes (monoterpenoids, sesquiterpenoids and diterpenoids) and reducing sugars.

4. Medicinal uses (Indications)

- A. Symptomatic treatment of mild, spasmodic gastro-intestinal complaints including bloating and flatulence (2,4).
- B. Symptomatic treatment of minor spasm associated with menstrual periods (2,4).
- C. Expectorant in cough associated with cold (2,4,5).

5. Herbal preparations correlated to medicinal use

1. Dried fruits as herbal tea infusion (2)
2. Fennel fruit powder (6,7)
3. Ethanolic Extracts (4,8,9)
 - 3.1 Dry extract
 - 3.2 Tincture
 - 3.3 Fluid extract
4. Aqueous Extracts (dry and concentrate infusions) (2,8)
5. Fennel oil (4,8,9)

Herbal preparations (2-5) are in pharmaceutical dosage forms. The pharmaceutical form should be described by the pharmacopoeia full standard term.

6. Posology and method of administration

Preparation 1 (2)

Indications A and C

Adults and adolescents: Single dose: 1.5 g of herbal substance in 250 ml of boiling water (steep for 15 minutes) as a herbal infusion, 3 times daily. Daily dose: 4.5 g.

Children 4-12 years: 1.0 g of the herbal substance in 250 ml boiling water (steep for 15 minutes) as a herbal infusion, 3 times daily. Daily dose: 3.0 g.

Indication B

Adults and adolescents: Single dose: 1.5 g of herbal substance in 250 ml of boiling water (steep for 15 minutes) as a herbal infusion, 3 times daily. Daily dose: 4.5 g.

The use in children under 12 years of age is not recommended.

Preparation 2

Indications A, B and C

Adults: 480-960 mg, 3 times daily, preferably with food (6,7).

Preparation 3

Indications A, B and C

Adults and elderly

3.1 Equivalent to 0.6 – 2.8 g of dried fruit, daily (8)

3.2 7- 14 ml, daily (1:5) (4,9)

3.3 3-6 ml (1:2) daily (4,9)

Preparation 4 (2,8)

Indications A, B and C

Adults and adolescents: An aqueous preparation of average daily dose equivalent to 4.5 g fruits, in divided doses; not to exceed 1.5 g per single dose.

Children 4-11: An aqueous preparation of average daily dose equivalent 3 g fruits, in divided doses; not to exceed 1 g per single dose.

Preparation 5

Indications A and C

Adults and elderly: 0.2 ml of essential oil, as a single dose per day or in multiple divided doses (8).

Children: Pure essential oil should not be given to infants and young children (1) but it may be used in a pharmaceutical dosage form, under medical supervision and not exceed the appropriate dose.

Due to safety concerns regarding estragole, the posology and administration method were modified as indicated above to ensure the daily estragole intake does not exceed the following amount (10):

Adults and adolescents: 0.05 mg per person per day.

Children: 1.0 µg per kg body weight per day.

Duration of use: Not to be taken for more than two weeks for adults and adolescents (2,8) and one week for children (2,8,11).

Method of administration: Oral use (2,5,8).

7. Contraindications

- Hypersensitivity to active substances and to other plants of the same family.
- Pharmaceutical preparations containing fennel oil are contraindicated in children under the age of 1 year (12).

8. 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
- In rare cases, allergic reactions such as asthma, contact dermatitis and rhinoconjunctivitis have been reported in sensitive patients (1).
- Patients with known hypersensitivity to Asteraceae (Compositae) should avoid the use of fennel and its preparations because of cross reactivity risk (2).
- The pure essential oil from the fruits may cause inflammation and has an irritant action on the gastrointestinal tract (1).
- Bleeding disorders: Fennel might slow blood clotting, taking fennel might increase the risk of bleeding or bruising in people with bleeding disorders (11).
- Because of its estrogenic activity, excessive doses of fennel oil may affect hormone therapy, oral contraceptive pill and hormone replacement therapy (11).
- The pure essential oil should not be given to infants and young children without medical supervision owing to the danger of laryngeal spasm, dyspnea and central nervous system excitation (1,13).

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

Anticonvulsants: Fennel may increase the risk of seizures; avoid concurrent use (4)

Ciprofloxacin: Fennel affects the absorption, distribution, and elimination of ciprofloxacin. If the two are used concurrently, their dosages should be separated by at least 2 hours (4,6,9).

10. Fertility, pregnancy and lactation

- Safety during pregnancy and lactation has not been established. In the absence of sufficient data, the use during pregnancy or lactation is not recommended (2).
- Fennel fruit may be used during pregnancy and lactation at the recommended dosage, as infusions only (5).
- No fertility data available.

11. Effects on ability to drive and use machines

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

12. Undesirable effects

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

- **Allergic reactions to fennel**, affecting the skin or the respiratory system may occur (2).

- Hypersensitivity reactions, contact dermatitis, photosensitivity (4).
- Pulmonary edema, possible hormone-sensitive cancers (4).

- **Allergic reactions to fennel oil**, affecting the skin, the respiratory and gastro-intestinal system, seizures, hallucinations, nausea, vomiting or anorexia may occur (4).

13. Overdose

No case of overdose has been reported (2).

14. Relevant biological properties

Not required as per Egyptian guidelines for registration of herbal medicines.

15. Additional information

- There are two varieties of fennel fruit :bitter fennel (*Foeniculi amari fructus*) and sweet fennel (*Foeniculi dulcis fructus*) (5).

- Bitter fennel is richer in essential oil than sweet fennel (5).

16. Date of compilation/last revision

10/09/2025.

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