

Egyptian Herbal Monograph

Volume 2

Medicinal Plants used in Egypt

Egyptian Drug Authority (EDA)

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Glycyrrhiza glabra L.

عرقسوس

1. Names & Synonyms (1)

Glycyrrhiza glabra L. and its varieties or *Glycyrrhiza uralensis* Fisch.

Syn. *Liquiritae officinalis* Moench.

Family: Fabaceae (Leguminosae).

Arabic: Irksos, Erqsos عرقسوس

English: licorice, licorice root, liquorice, liquorice root, sweet root and sweet wood.

2. Parts used for medicinal purpose

Dried Root (1-4) and rhizome (1, 4).

3. Major chemical constituents (5)

- **Saponins:** Glycyrrhizin and glycyrrhizic acid (glycyrrhizinic acid), as a mixture of potassium and calcium salts.
- **Flavonoids:** glycosides of liquiritigenin and isoliquiritigenin, such as liquiritin, isoliquiritin, liquiritin apioside and licuraside (6).
- **Others:** Essential oil (mainly geraniol and geranyl hexanolate) and sterols (β -sitosterol, dihydrostigmasterol) (7).

4. Medicinal uses (Indications)

- A. Relief of digestive symptoms including burning sensation and dyspepsia (2), inflammatory conditions, such as gastritis in adults (3).
- B. Expectorant in cough associated with cold (2, 3) to help relief chest complaints, such as mucous build up (catarrhs) and bronchitis (3).
- C. Relieve minor inflammations of mucous membranes of the mouth (such as canker sores) (demulcent) (3).

5. Herbal preparations correlated to medicinal use (2)

1. **Comminuted herbal substance as herbal tea** for oral use in the form of infusion or decoction.
1.5 - 2 g of comminuted herbal substance in 150 ml of boiling water as a herbal infusion or decoction.
2. **Soft extract** (1:0.4-0.5), extraction solvent water.
3. **Soft extract** (3:1), extraction solvent water.
4. **Dry extracts** that correspond to preparations mentioned under 2) and 3).
5. **Deglycyrrhized (DGL) dry extract** (3)
 - 5.1. Acceptable dosage forms for the age category listed in this monograph and specified route of administration are limited to chewables.
 - 5.2. In dosage forms suited to buccal administration which allow for contact between the affected tissue and the medicinal ingredient including but not limited to lozenges, chewables (e.g. gummies, tablets), strips and liquids (such as gargles, rinses).

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 correlated to medicinal use (2)

Preparation 1-4

Indication A

Adults and elderly

1. 2 to 4 times daily. Take one cup after meals.
2. Soft extract (1: 0.4-0.5) 32 mg 2-3 times daily for oral use. Not more than 160 mg (32 mg 5 times) daily.
3. Doses of dry extracts are corresponding to preparation 2.

Not to be used for more than 4 weeks.

If the symptoms persist longer than 2 weeks during the use of the medicinal product, a doctor or pharmacist should be consulted.

Indication B**Adults and elderly**

1. 2 times daily. Take one cup after meals.
2. Soft extract (3:1) 1.2-1.5 g 3-4 times daily.
3. Doses of dry extracts corresponding to preparation 3.

Dose: 60mg (minimum) -600mg (maximum) of glycyrrhizin daily.

Adolescents 15-17 years

Dose: 60mg (minimum) - 600mg (maximum) of glycyrrhizin daily.

Children 10-14 years of age

Dose: 30mg (minimum) - 300mg (maximum) of glycyrrhizin daily.

Children 5-9 years of age

Dose: 15mg (minimum) - 150mg (maximum) of glycyrrhizin daily.

Children 4 years of age

Dose: 10mg (minimum) - 100mg (maximum) of glycyrrhizin daily.

Duration of use: If the symptoms persist longer than 1 week during the use of the medicinal product, a doctor or pharmacist should be consulted.

Method of administration: Oral use.

Preparation 5.1**Indication A****Adults and elderly:**

380 mg -1520 mg (3 times a day).

Adolescents:

15-17 years: 380 mg - 1520 mg (3 times a day).

12-14 years: 190 mg -760 mg (3 times a day).

Children:

10-11 years: 190 mg -760 mg (3 times a day).

5-9 years: 95 mg - 380 mg (3 times a day).

3-4 years: 63 mg -253 mg (3 times a day).

Chew between meals or 20 minutes before meals, 3 times a day.

Method of administration: Oral use.

Preparation 5.2**Indication C****Adults and elderly:**

200 mg -1140 mg (4 times a day).

Adolescents:

15-17 years: 200 mg - 1140 mg (4times a day).

12-14 years: 100 mg -570 mg (4 times a day).

Children:

10-11 years: 100 mg -570 mg (4 times a day).

5-9 years: 50 mg - 285 mg (4 times a day).

3-4 years: 33 mg -190 mg (4 times a day).

Gargle four times daily with 200 mg DGL powder dissolved in 200 ml of warm water, 4times a day.

Method of administration: Buccal use.

7. Contraindications

- Hypersensitivity to active substances and to other plants of the same family.
- Cholestatic liver disorders, liver cirrhosis, hypertonia, hypokalemia, severe kidney insufficiency and cardiovascular-related disorder, because liquorice ingestion has resulted in symptoms of primary hyperaldosteronism, such as water and sodium retention and hypokalaemia (8).

8. Special warnings and precautions for use (2)

- If the symptoms worsen during the use of the medicinal product, a doctor or a pharmacist should be consulted.
- Patients taking licorice medication should not take other licorice containing products as serious adverse effects may occur such as water retention, hypokalemia, hypertension, cardiac rhythm disorders (4).
- Licorice medication is not recommended to be used in patients affected by hypertension, kidney diseases, liver or cardiovascular disorders or hypokalemia, as they are more sensitive to the adverse effects of licorice (4).
- If dyspnoea, fever or purulent sputum occurs, a doctor or pharmacist should be consulted

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

- Licorice root may counteract antihypertensive action of prescribed medications (2) and may cause increased hypokalemia (4).
- Not to be used concomitantly with diuretics, cardiac glycosides, corticosteroids, stimulant laxatives or other medications which may aggravate electrolyte imbalance (2, 4, 9, 10).
- Azole antifungals: Licorice may increase the levels of azole antifungals; avoid concurrent use (3).
- Cytochrome P450 3A4, 2B6 substrates: Licorice may decrease the action of these agents (4).
- **Herb (4)**
Aloe (taken internally), buckthorn, cascara and chinese rhubarb:
Licorice may cause hypokalemia when used with stimulant laxative herbs.
- **Food (4)**
Grapefruit juice: Use of licorice with grapefruit juice may increase corticosteroid action of licorice.
- **Lab Test (4)**
Anion gap, blood, potassium, serum prolactin, serum or urine sodium:
Licorice may decrease anion gap, blood; potassium (greater than 6 weeks); serum prolactin; serum or urine sodium results.
Serum, urine myoglobin: Licorice may cause a possible positive test for serum, urine myoglobin.

10. Fertility, pregnancy and lactation

- The use during pregnancy and lactation should be avoided (8). Studies in animals have shown reproductive toxicity (2).
- No fertility data available (2).

11. Effects on ability to drive and use machines (2)

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

12. Undesirable effects

- None reported (2).
- If adverse reactions occur, a doctor or a pharmacist should be consulted.

13. Overdose

- Cases of overdose have been reported with prolonged use (more than 4 weeks) and/or intake of high amount of licorice, with symptoms such as water retention, hypokalaemia, hypertension, cardiac rhythm disorders, hypertensive encephalopathy (2, 10) and in rare cases, myoglobinuria (10).
- Individuals consuming 10–45 g licorice/day have exhibited raised blood pressure, together with a block of the aldosterone/renin axis and electrocardiogram changes, which resolved one month after withdrawal of licorice. Individuals consuming vastly differing amounts of licorice have exhibited similar side-effect symptoms, indicating that the mineralocorticoid effect of licorice is not dose dependent and is a saturable process (8).

14. Relevant biological activities

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

15. Additional Information

A deglycyrrhized licorice (DGL) preparation has been developed to provide some of the therapeutic benefits of licorice while reducing risk. It is a form of licorice that people have processed for safer consumption. DGL, which as the name implies, removed its glycyrrhizate content, making it safer to use this form of licorice than the former. This makes DGL safer for long-term use and has less interactions with medical conditions. DGL contains less than 2% of glycyrrhizin, making it suitable as an alternative long-term treatment against conditions related to gastrointestinal problems such as peptic ulcers, canker sores, and reflux (GERD). DGL or Deglycyrrhized Licorice DGL, doesn't seem to have the same side effects.

Some people are so sensitive to glycyrrhizin that even the tiny amounts left in deglycyrrhized licorice can pose a problem.

DGL licorice although considered safer it may still pose certain health risks. You should also avoid DGL licorice if you have a history of diabetes, edema, high blood pressure, or heart, kidney or liver disease (11).

16. Date of compilation/last revision

03/08/2023.

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