

Egyptian Herbal Monograph

Volume 2

Medicinal plants used in Egypt

Egyptian Drug Authority (EDA)

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***Echinacea purpurea* L. Moench.**

إشنسيا

1. Names and Synonyms (1-2)

***Echinacea purpurea* L. Moench. Family:** Asteraceae (Compositae).

Syns.: *Echinacea intermedia* Lindl., *E. purpurea* (L.) Moench var. *arkansana* Steyererm., *E. purpurea* var. *purpurea* f. *liggettii*., *E. speciosa* Paxt., *Brauneria purpurea* (L.) Britton, *Rudbeckia purpurea* L., *R. hispida* Hoffm., *R. serotina* Sweet.

Arabic: Echinacea إشنسيا

English name: Purple coneflower.

2. Parts used for medicinal purpose

- Fresh or dried herb (aerial parts) (1-2).
- Rhizome/ root (2-3).

3. Major chemical constituents

Root:

-Phenylpropanoids: Caffeic acid esters; cichoric acid, caftaric acid, chlorogenic and isochlorogenic acids and caffeic acid glycosides; echinacoside, verbascoside, caffeoylechinasoside (4).

-Alkamides: Isobutylamides of straight-chain fatty acids with olefinic and/or acetylenic bonds contain mainly 2,4-dienoic units (2,4).

-Polysaccharides: Methylglucuronoarabinoxylan, rhamnoarabinogalactan, xyloglucan and glycoproteins; arabinogalactan-protein (protein has high concentrations of serine, alanine and hydroxyproline) (2).

-Others: Polyacetylene (volatile oil components): Alkylketones; (2,4) saturated pyrrolizidine-type alkaloids (tussilagine and isotussilagine) (2,4); flavonoids (quercetin, kaempferol, isorhamnetin and their glycosides; betaine, fatty acids, simple sugars, sterols and vanillin (2).

Herb/aerial parts:

-Phenylpropanoids: Caffeic acid esters; cichoric acid, caftaric acid, chlorogenic and isochlorogenic acids, and caffeic acid glycosides; echinacoside, verbascoside, caffeoylechinasoside (4).



-phenolic acids: *p*-coumaric, *p*-hydroxybenzoic and protocatechuic acids; betaine (2).

-Flavonoids: quercetin, kaempferol, isorhamnetin and their glycosides (2,5).

-Alkamides: Isobutylamides of straight-chain fatty acids with olefinic and/or acetylenic bonds contain mainly 2,4-dienoic units (2,4).

-Polysaccharides: Methylglucuronoarabinoxylan, rhamnoarabinogalactan, xyloglucan and glycoproteins; arabinogalactan-protein (protein has high concentrations of serine, alanine and hydroxyproline) (2).

-Others: volatile oil components; borneol, bornyl acetate, germacrene D and caryophyllene (2,4), saturated pyrrolizidine-type alkaloids (tussilagine and isotussilagine) (2,4), anthocyanins, fatty acids, simple sugars, sterols and vanillin (2).

4. Medicinal Uses (Indications) (1, 4)

- A. Treatment and prevention of recurrent infections of the common cold, influenza and other upper respiratory tract infections as well as lower urinary tract infections through the immunostimulant effects (2, 4, 6, 7).
- B. Treatment and relief of inflammatory skin conditions: as poorly healing small superficial wounds, spots and pimples due to mild acne, bruises, burns, scratches, leg ulcers, persistent recurring episodes of painful nodules in the skin, boils, carbuncles and abscesses (1, 2, 4).

5. Herbal preparations correlated to medicinal use

1. Comminuted herbal substances as a herbal tea (3,8).

Powdered dried herb/ root or a combination of both are simmered for 15 minutes in 150 ml hot water as infusion or boiled with 150ml water as decoction.

2. Powdered herbal drug (3,8).

3. Herb Juice (4)

3.1. Expressed juice (1.5-2.5: 1).

3.2. Dried expressed juice.

4. Root dry extract (4)

4.1. Extraction solvent ethanol, 45% (V/V).

4.2. Extraction solvent water.

5. Herb/aerial parts dry extract (Extraction solvent ethanol/ water).



6. Herb/ root fluid extract (8).

7. Root tincture (2,8)

7.1. Extraction solvent ethanol 55%, extraction ratio: 1:5 (2,8).

7.2. Extraction ratio: 1: 2 (8).

Herbal preparations (2-7) 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 (4)

Preparation 1, 2 (3,8)

Indication A

Adults:

2.5- 6 gm (dried herb), 0.9 - 4.5 gm (dried root), 3 - 5.5 gm (dried herb and root), daily.

Adolescents:

15-17 years: 2.5 -6 gm (dried herb), 0.9 - 4.5 gm (dried root), 3 -5.5 gm (dried herb and root) daily.

12-14 years: 1.3 - 3gm (dried herb), 0.45 - 2.3 gm (dried root) , 1.5 - 2.8 gm (dried herb and root) daily.

Children:

10-11 years: 1.3 – 3 gm (dried herb), 0.45 - 2.3 gm (dried root), 3 - 5.5 gm (dried herb and root) daily.

5-9 years: 0.15 - 0.8 gm (dried herb), 0.6 - 1.5 gm (dried root), 0.8 - 1.4 gm (dried herb and root) daily.

2-4 years: 0.4 – 1 gm (dried herb), 0.15 – 8 gm (dried root), 0.5 - 0.9 gm (dried herb and root) daily.

Duration of use: Not more than 10 days (9).

Method of administration: Oral use.

Preparation 3

Indication A

3.1. Adolescents, adults and elderly: 1.5 - 4.5 ml, daily dose: 6 - 9ml (1, 2, 4).

Children: 10-11 years: 2-5 ml daily; **5-9 years:** 1-2.5ml daily; **2-4 years:** 0.7-1.7ml daily (8).



3.2. Corresponds to the posology of the expressed juice (4); or,

Adolescents and adults: 112.5 mg 3 times daily, daily dose: 337.5 mg.

Children 6 - 12 years: Single dose: 112.5 mg twice a day, daily dose: 225 mg.

Children 4 years and above: Single dose: 56.25 mg 3 times daily, Daily dose: 168.75 mg.

Duration of use (4).

- For treatment, start the therapy at first signs of common cold.
- Do not use the medicinal product for more than 10 days.
- If the symptoms persist for more than 10 days, a doctor or a pharmacist should be consulted.

Method of administration: Oral use.

Indication B

Adolescents, adults and elderly:

10 to 20 g /100 g of expressed juice or equivalent amount of dried expressed juice (4).

- Semisolid preparations containing at least 15% pressed juice (1).

Duration of use: (4)

- Not to be used for more than 1 week.
- If the symptoms persist during the use of the medicinal product, a doctor or a pharmacist should be consulted.

Method of administration: Cutaneous use (4).

Preparation 4

Preparation 4.1

Indication A

Adolescents, adults and elderly:

- 40 mg of extract every second hour, daily dose: 360 mg (40 mg, 9 times daily) (4).
- 500 mg once daily.

Children: Corresponds to the posology of powdered herbal drug (8), or;

- **Children from 6-12 years:** 125 mg once daily.
- **Children 2 years and above:** 50 mg once daily.

Duration of use (4)

- The therapy should start at the first signs of common cold.
- If the symptoms persist longer than 10 days during the use of the medicinal product, a doctor or a pharmacist should be consulted



Method of administration: Oral and oromucosal use (4).

Preparation 4.2

Indication B

Adults and elderly: 50-100 mg, 3 times daily, daily dose: 150-300 mg

Adolescents: 50 mg, 2 times daily, daily dose: 100 mg

Duration of use

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

Method of administration: Oral use.

Preparation 5

Indication A

Adults and Adolescents:

- 337.5mg once daily.
- 376-420mg daily in 2 divided doses.

Children from 6-12 years:

- 112.5mg once daily.
- 282mg daily in 3 divided doses.

Children 2 years and above: 56.25-94mg 1-2times daily.

Preparation 6

Indication A

Adults: 3 -5.5 ml, daily (equivalent to 3 - 5.5 gm drug) (8).

Adolescents and children: correspond to the posology of powdered herbal drug (8).

Preparation 7

Indication A

Adults:

Preparation 7.1.

2 - 4 ml, 3 times daily (3) (Equivalent to 60 drops, 3 times daily (2)).

Preparation 7.2.

Adults: 3 - 9 ml, daily (equivalent to 1.5 - 4.5 gm drug) (8).

Adolescents and children: Correspond to the posology of powdered herbal drug (8).

7. Contraindications (3, 4)

- Hypersensitivity to the active substances and to other plants of the same family (4).
- Echinacea should not be given to children younger than 2 years of age (3).
- Progressive systemic disorders, collagen disease, tuberculosis, immunodeficiencies (HIV/AIDS), immunosuppression diseases of white blood



cell system, and autoimmune diseases such as lupus erythematosus and multiple sclerosis (3, 4, 8).

8. Special warnings and precautions for use (4, 8)

- If the symptoms worsen during the use of the medicinal product or high fever, a doctor or a pharmacist should be consulted.
- The use in children under 12 years is not recommended (4) without medical supervision due to the risk of rare allergic reactions that may sometimes be severe in this age group (10).
- There is a possible risk of allergic reactions in sensitive individuals. Those patients should consult their doctor before using Echinacea (4).
- There is a possible risk of anaphylactic reactions in atopic patient. Atopic patient should consult their doctor before using Echinacea (4).
- Echinacea should not be used for longer than 8 weeks without a 3-week rest period (3).
- Immunosuppression may occur after extended therapy with this herb (3).

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

- Echinacea may inhibit cytochrome P450 3A4 enzymes (3).
- The action of Econazole vaginal cream may be decreased by echinacea; concurrent use should be avoided (3).
- It may decrease the effects of immunosuppressants, protease inhibitors, corticosteroids and should not be used immediately before, during, or after transplant surgery (3, 11).

LAB Tests:

- Echinacea may increase ALT, AST, lymphocyte counts, serum immunoglobulin E (IgE), blood erythrocyte sedimentation rate (ESR) (3).
- High doses of Echinacea interfere with sperm enzyme activity (11).

10. Fertility, pregnancy and lactation

- Safety during pregnancy and lactation has not been established. In the absence of sufficient data, the use during pregnancy and lactation is not recommended (4).
- No fertility data available (11).



11. Effects on ability to drive and use machines (4)

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.
- Hypersensitivity reactions (skin reactions) may occur (3, 4).
- Hepatotoxicity, acute asthma attack, anaphylaxis and angioedema may occur (3).

13. Overdose

No case of overdose has been reported (4).

14. Relevant biological activities

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

15. Additional information

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16. Date of last revision

20/02/2024

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