



Egyptian Herbal Monograph

Volume 3

Medicinal Plants used in Egypt

Egyptian Drug Authority (EDA)

2023



Egyptian Herbal Monograph

Medicinal Plants Used in Egypt

Crataegus spp.

زعرور

1. Names & Synonyms (1)

Crataegus spp.

(Mainly *C. laevigata* (Poir.) DC., *C. monogyna* Jacq., *C. rhipidophylla* Gand., and their hybrids).

Crataegus laevigata (Poir.) DC.

Syn.: *Crataegus oxyacanthoides* Thuill., *C. oxyacantha* auct.

Crataegus monogyna Jacq.

Syn.: *Crataegus oxyacantha* L., nom. ambig.

Crataegus x *sinaica* Boiss. (2)

Syn.: *C. azarolus* × *C. monogyna*.

Family: Rosaceae

Arabic name: Za'arour زعرور (2)

English name: Hawthorn (3-5).

2. Parts used for medicinal purpose

Fresh and dried leaves with flowers (4-6), and dried fruits (berries) (1,3,4,7).

3. Major chemical constituents

1. Phenolics:

- Flavan-3-ols: (-)-Epicatechin, catechin (5), and procyanidins B2, B5, C-1 and D1 (8,9).
- Flavonols: Isoquercitrin, rutin, hyperoside, and quercetin (5).
- Flavones: Vitexin, vitexin-rhamnoside (8,9), and isovitexin (5).
- Phenolic acids: Chlorogenic, ferulic (10) and caffeic acids (5).

2. Triterpenic acids: Oleanolic, ursolic (8,9,11) and crataegolic acids (5).

3. Pectin (in fruits only) (12).

4. Medicinal Uses (Indications)

- Adjunct therapy for heart failure stage II (6,7).
- Relieve symptoms of temporary nervous cardiac complaints (e.g. palpitations, perceived extra heart beat due to mild anxiety) after serious conditions have been excluded (5).
- Relief of mild symptoms of mental stress and to aid sleep (5).

5. Herbal preparations correlated to medicinal use (5)

1. Comminuted herbal substance as herbal tea in the form of infusion.
2. Powdered herbal substance.
3. Dry extract
 - 3.1 Ethanol (45-70%)
 - 3.2 Water
4. Liquid extract
 - 4.1 Ethanol 45% (DER 1:0.9-1.1)
 - 4.2 Ethanol 45% (DER 1:2)
 - 4.3 Ethanol 25% (1: 1)
5. Expressed juice from the fresh leaves with flowers
 - 5.1 (DER 1:0.63-0.9)
 - 5.2 (DER 1:0.9-1.1)
6. Tincture (Ethanol 35%- 45%) (1:5) (13).

Herbal preparations (2-6) 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

Preparation 1

Adults and elderly (5)

Indication A

- 1-1.5 g of dried leaves with flowers, 3-4 times daily (3,6).

Indication B

- 1-2 g of dried leaves with flowers, up to 4 times daily (max. 6 g) (3,5).
- 0.3–1 g of dried fruits, 3 times daily, up to 3.5 g (3,4,13).

Preparation 2 (5)

Indication B

Adults and elderly

Single dose: 190 - 350 mg of dried leaves with flowers, daily dose: 570 - 1750 mg.

Indication C

Adolescents, adults and elderly

Single dose: 190 - 350 mg of dried leaves with flowers, daily dose: 570 - 1750 mg.

- 1– 3 g dry fruits daily (13).



Preparation 3.1

Adults and elderly

Indications A and B

- 160 - 900 mg of dried leaves with flowers daily in divided doses, dry extract of the dried flower and leaf standardized to 18.75% of Oligomeric procyanidins, as epi-catechin, and/or to 2.2% of flavonoids, as hyperoside (3,5,6,13).

Indication B

- 300 - 750 mg of fruit extract daily, standardized to 0.9 - 10% of Oligomeric proanthocyanidins (3).

Preparation 3.2 (5)

Indication C

Adolescents, adults and elderly

Single dose: 250 mg of dried leaves with flowers, daily dose: 750–1000 mg.

Preparation 4.1 (5)

Indication B

Adults and elderly

Single dose: 0.56 - 1.25 g of dried leaves with flowers, daily dose: 1.68 - 3.75 g.

Preparation 4.2 (5)

Indication B

Adults and elderly

Single dose: 1.84 g of dried leaves with flowers, daily dose: 5.52 g.

Preparation 4.3 (4)

Indication B

0.5 – 1.0 ml dried fruit, 3 times daily.

Preparation 5.1 (5)

Indication B

Adults and elderly

Single dose: 7 ml of fresh leaves with flowers, daily dose: 21 ml.

Preparation 5.2 (5)

Indication B

Adults and elderly

Single dose: 2.4 ml of fresh leaves with flowers, daily dose: 7.5 ml.

Preparation 6 (5)

Indication B

Adults and elderly

Dried leaves with flowers



Single dose: 1.68 g, daily dose: 5.1 g.

10 - 20 drops, 3 times daily (14).

1-2 ml, 3 times daily in a little water (14).

Fruits: 1 - 2 ml, 3 times daily (4).

Duration of use:

Indication A (6):

Therapeutic effect may require 4 - 6 weeks of continuous therapy.

Indications B and C (5):

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.

7. Contraindications

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

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.
- Not suitable for self-medication (13).
- Accurate diagnosis of stage II congestive heart failure should be obtained prior the use (6).
- If the ankles or legs become swollen, when pain occurs in the region of the heart, which may spread out to the arms, upper abdomen or the area around the neck, or in case of respiratory distress (dyspnea), a doctor or a pharmacist should be consulted (4-6).
- In case of taking cardiac glycosides such as digitalis/digoxin, or blood pressure medication, it is considered to be potentially harmful if not used under medical supervision (3).
- The use in children and adolescents under 18 years of age is not recommended for indications A and B (5, 6).
- The use in children under 12 years of age has not been established for indication C (5).

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

Drugs

- Cardiac, hypertensive and hypotensive therapies (13), CNS depressants and iron salts (7, 15).

- Drugs that inhibit the inward flow of potassium channels resulting in an increased action
- potential in cardiac ventricular cells (15).

Herbs

- Adonis, lily of the valley, squill and Fenugreek (7).

Lab Test

- Serum digoxin (7).

10. Fertility, pregnancy and lactation (5)

- Safety during pregnancy and lactation has not been established. In the absence of sufficient data, the use during pregnancy and lactation is not recommended.
- No fertility data is 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 (5).

12. Undesirable effects

- If adverse reactions occur, a doctor or a pharmacist should be consulted.
- Sedation, dizziness, decreased reaction time, nausea, vomiting, fatigue, anorexia, sweating, hypersensitivity reactions, including dermatitis rash, anaphylaxis and gastrointestinal symptoms (7,13,16).

13. Overdose

High doses may induce hypotension (that can be good in hypertension) and sedation (which can be good in insomnia) (13).

14. Relevant biological activities

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

15. Additional Information

It should be emphasized that hawthorn preparations are not specific drugs “NOT used as Monotherapy” for acute disease treatment. They are primarily used as a preventive measure for milder forms of myocardial insufficiency (heart failure, hypertension, and arteriosclerosis of the elderly heart) (17,18).

16. Date of last compilation/last revision

05/06/2023.

References

1	Edwards, S. E., Rocha, I. C., Williamson, E. M. and Heinrich, M. (2015). <i>Phytopharmacy: An Evidence-Based Guide to Herbal Medicinal Products</i> . 1 st Edition, John Wiley & Sons, Ltd. ISBN: 978-1-118-54356-6.
2	Omer, E. A and Fouad, R. (2018). <i>Crataegus sinaica</i> Boiss. In: Egyptian Encyclopedia of Wild Medicinal Plants, 6 , 338-349. Academy of Scientific Research and Technology, Cairo, Egypt.
3	Natural Health Product, Hawthorn (2021). Health Canada. https://webprod.hc-sc.gc.ca/nhp/ident/bdipsn/atReq.do?atid=crataegus.monogyna&lang=eng .
4	Barnes, J., Anderson, L. A. and Phillipson, J. D. (2007). <i>Herbal Medicines</i> , 3 rd edition. Published by the Pharmaceutical Press. ISBN 978 0 85369 623 0.
5	European Union Herbal Monograph on <i>Crataegus</i> spp., folium cum flore (2016). EMA/HMPC/159075/2014. Committee on Herbal Medicinal Products (HMPC).
6	WHO monographs on selected medicinal plants (2002). <i>Monographs on Selected Medicinal Plants</i> , 2 , 66- 82.
7	Skidmore-Roth (2010). <i>Mosby's Handbook of Herbs and Natural Supplements</i> . St. Louis: Mosby, 4th ed. ISBN: 978-0-323-05741-7.
8	Cui, T., Nakamura, K., Tian, S., Kayahara, H. and Tian, Y. L (2006). Polyphenolic content and physiological activities of Chinese hawthorn extracts. <i>Bioscience, Biotechnology, and Biochemistry</i> , 70 (12), 2948–2956. https://doi.org/10.1271/bbb.60361 .
9	Cui, T., Jian-Zhong, L., Hiroshi, K., Liang, M., Li-Xia, W. and Kozo, N. (2006). Quantification of the polyphenols and triterpene acids in Chinese hawthorn fruit by high-performance liquid chromatography. <i>Journal of Agricultural and Food Chemistry</i> , 54 (13), 4574–4581. doi:10.1021/jf060310m.
10	Du, W., Fan, H-M., Zhang, Y-X., Jiang, X-H. and Li, Y. (2022). Effect of flavonoids in hawthorn and vitamin C prevents hypertension in rats induced by heat exposure. <i>Molecules</i> , 27 (3), 866. https://doi.org/10.3390/molecules27030866 .
11	Nabavi, S. F., Habtemariam, S., Ahmed, T., Sureda, A., Daglia, M., Sobarzo-Sánchez, E. and Nabavi, S. M. (2015). Polyphenolic composition of <i>Crataegus monogyna</i> Jacq.: From chemistry to medical applications. <i>Nutrients</i> , 7 (9), 7708-7728. doi: 10.3390/nu7095361.
12	Guo, Q., Du, J., Jiang, Y., Goff, H. D. and Cui, S. W. (2019). Pectic polysaccharides from hawthorn: Physicochemical and partial structural characterization. <i>Food Hydrocolloids</i> , 90 , 146-153. 10.1016/j.foodhyd.2018.10.011.
13	Duke, J. A. (2002). <i>Handbook of Medicinal Herbs</i> . 2 nd ed. CRC Press. ISBN 978084931284.
14	Kraft, K. and Hobbs, C. (2004). <i>Pocket Guide to Herbal Medicine</i> . Stuttgart; New York: Thieme. ISBN 3-13-126991-X (GTV), ISBN 1-58890-063-0 (TNY).
15	PDR for Herbal Medicines (2002). Montvale, NJ: Medical Economics Company, 2 nd ed., ISBN 1-56363-361-2.
16	Spiteri, M. (2011). <i>Herbal Monographs including Herbal Medicinal Products and Food Supplements</i> . Department of Pharmacy University of Malta. Set and printed by Print Right Ltd, Qormi.
17	Assessment Report on <i>Crataegus</i> spp., folium cum flore (2016). EMA/HMPC/159076/2014. Committee on Herbal Medicinal Products (HMPC).
18	Hänsel, R., Sticher, O. and Steinegger, E. (1999). <i>Pharmakognosie - Phytopharmazie</i> , Springer-Lehrbuch, Springer Berlin Heidelberg, Berlin, Heidelberg.