

***Citrullus colocynthis* L.**
Cucurbitaceae



Compiled by: Prof. F. M. Hammouda, Prof. S. I. Ismail,
Dr. N. S. Abdel-Azim and Dr. K. A. Shams
Edited by: Prof. K. H. Batanouny
Photos by Prof. K. H. Batanouny

■ Morphological Description

Colocynthis is a perennial herbaceous vine, with angular and rough stems. Stems are 0.5-1.5m, procumbent, branched, angular and hirsute. The root is fleshy. Leaves are rough, 3-to 7-lobed, 5-10 cm long, the middle lobe sometimes ovate, sinuses open, flowers monoecious, solitary, peduncled, axillary, corollas 5-lobed; ovary villous. Fruit are nearly globular, 4-10 cm in diameter with somewhat elliptical fissures, about the size of a small orange; variegated green and yellow, becoming yellow when ripe, with hard rind, the pulp light in weight, spongy, easily broken, light yellowish-orange to pale yellow, and intensely bitter. Seeds are numerous, ovoid, compressed, smooth, dark brown to light yellowish-orange, borne on parietal placenta. Flowers in summer. The plant produces 40-60 fruits every year.

■ Geographical Distribution

Local: Almost all the deserts of Egypt. At the Red Sea, near Kosseir, it occurs in large quantities.

Regional: All North African countries.

Global: Semi-deserts and deserts of North Africa, Southern Europe and Asia, from the Canary Islands Eastwards to India.

■ Ecology

Ranging from cool temperature moist through tropical desert to west forest life zones, colocynthis is reported to tolerate annual precipitation of 38 to

***Citrullus colocynthis* L.**, Schrader, Linnaea 12:414.(1838) *Cucumis colocynthis* L., *Colocynthis vulgaris* Schrad.

Names

Arabic: Handal حنظل , Handhal حنظل,
Oorky أوركي , Tator طاتور , Hadag حدج

حنظل

Berber: Tadjellet, Alkat, Taferzizt, Tifersit, Ubruzi.

English: Colocynthis, Bitter apple, Bitter gourd.

French: Coloquinte, Chicotin.

430 mm, and an annual temperature of 14.8 to 27.80C. A highly xerophytic plant, it thrives where the mean annual temperature is from 23-27 oC and annual rainfall ranges from 25-37 cm. It thrives on sandy loam, subdesert soils, and along sandy sea coasts. It appears grouped in depressions receiving runoff water.

The plant is easily cultivated from seed, as it grows rapidly, requiring no attention once fields have been sown.

■ Status

The plant is safe, and is common in all North African countries. However, cultivation of the plant for medical purposes has been recommended. Being a member of the Cucurbitaceae, it could be cultivated in a similar manner to water melons. However, it is more drought-resistant. The plant produces numerous fruits every year, ca 40-60 fruits per plant. In Egypt, the plant is not cultivated but fruit yields from wild plants supply a small amount of yellow pulp.

■ Part(s) Used

The leaves, pulp of the peeled fruit (colocynthis), the seeds and the roots.

■ Collection

Fruits gathered when still unripe but fully developed. Fruit is hand-picked, the thin, hard, gourd-like outer rind (pericarp) removed by peeling, and the inner white spongy pulp filled with seeds. It is dried in the sun or in ovens. Commercial colocynthis occurs in two forms: as a pulp from which most of the seeds

have been removed, and as "bitter apples" or masses of pulp filled with seeds that have been rolled into balls. Both forms are usually shipped in boxes.

■ Preparation

Compound Colocynth tablets, Compound Colocynth extract

■ Use

Oral, external.

■ Constituents

Pulps (colocynth) contains cucurbitacins including elaterinide and cucurbitacine E, cucurbitacine B, other glycosides liberating cucurbitacines I and L, alkanes, aliphatic alcohols, alkaloids and choline base.

Roots contain elaterin, hemtriacontane, and saponins.

Seeds contain about 16% fixed oil, phytosterols, phytosteroline and mucilage.

■ Pharmacological Action and Toxicity

Colocynth is an irritant and cathartic. It acts powerfully, producing copious watery evacuations. Even in moderate doses, it has caused inflammation of the mucous membrane of the intestines, vomiting, severe tormina, and bloody stools. Except in minute doses, it is never used alone but with other laxatives and anodynes such as Aloes and Henbane. The leaves exhibit anti-inflammatory activity and are diuretic. They are recorded as being used in the treatment of asthma and jaundice.

The plant has been used for arterial hypertension and has hypoglycemic, antihyperglycemic and insulinotropic effects. Plant extracts are carcinogenic in mice. It is useful in constipation and in painful menstrual complaints. It shows anti-histaminic, anti-acetylcholine and cardiac depressant activities.

The extract of the dried pulp also has anti-bacterial activity.

Toxic effects after chronic use include hypokalemia, oliguria and oedema, similar to acute nephritis, and symptoms resembling Crohn's disease and Addison's Disease.

In case of poisoning by colocynth, the stomach should be emptied, and opium given orally or as a suppository, followed by stimulants and demulcent

drinks. A considerable number of severe cases of poisoning with this substance have occurred in humans, and a few have proved fatal. It should never be taken by nursing mothers since the active constituents appear in breast milk.

■ Pharmacopeias

The Augustana Pharmacopoeia (1581, 1684).

Pharmacopée Française 1965.

Pharmacopoeia of the Massachusetts Medical Society, Boston, 1808

The German Pharmacopoeia of 1872, 1882 and 1890.

The Egyptian Pharmacopoeia (1984).

■ Pharmaceutical Products

No-habit, Lotion, Tri M. Medical.

■ Traditional Medicine and Indigenous Knowledge

History: In Egypt, the Bedouins made a poultice of colocynth with warm cooking oils then placed it on the joints to combat rheumatic pain. The leaves have been used for painful menstruation, and the fruit, broken into small pieces, is used to protect woollen clothing from moths. The leaves are diuretic and used in the treatment of asthma. The root has been used in inflammation of the breasts, amenorrhoea and rheumatism. The fruit is pungent, a cooling purgative, anthelmintic, antipyretic and carminative. The fruit pulp is purgative, diuretic and is used against gonorrhoea.

■ Traditional Medicinal Uses

- Chest diseases (Bronchial Asthma)
- Constipation
- Rheumatic diseases
- Tumour diseases

Other uses of the plant: Roots are used as abortifacient. A decoction of the whole plant, made in juice with fennel, is said to help indurations of the liver. In Morocco, the fruit, broken into small pieces, is used to protect woollen clothing from moths.

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