

5.3. CARMINATIVES & G.I. REGULATORS

5.3.1. Introduction

Carminatives are soothing drugs which act by relieving stomach and intestinal pain, and expelling gas from GIT by peristalsis. Fennel, ginger, coriander, cinnamon, nutmeg, asafoetida, clove, etc. are some examples of carminatives.

G.I. regulators like stomachic, stimulants, appetizers, aromatics, antiemetic, sialogogues, and chologogues are used for regulating the activity of GIT.

5.3.2. Umbelliferous Fruits

The umbelliferous fruits are cremocarp, which are found either complete or separated into mericarps. The apex of these fruits carry five inconspicuous sepals, e.g., coriander, and the centre has two styles surrounded below by disc-like nectary forming the stylopod.

5.3.3. Coriander

Coriander is a herb grown once in a year. It is also well-known by the names of **cilantro** or **Chinese parsley**. All its parts are edible but fresh leaves and dried seeds are mostly used for cooking purpose.

Synonyms

Coriander fruits, Chinese parsley, and Indian parsley.

Biological Source

Coriander is the fully dried ripe fruits of *Coriandrum sativum*.

Family

Umbelliferae.

5.3.3.1. Occurrence and Distribution

Coriander is cultivated throughout the European countries, mainly in Russia, Hungary, and Holland. It is also cultivated in India, Egypt, and Morocco. In India, it is chiefly grown in the states of Andhra Pradesh (Guntur, Anantpur), Maharashtra (Jalgaon and Satara), West Bengal (Howrah and 24-Paragana districts), Uttar Pradesh, Rajasthan, and Jammu and Kashmir.

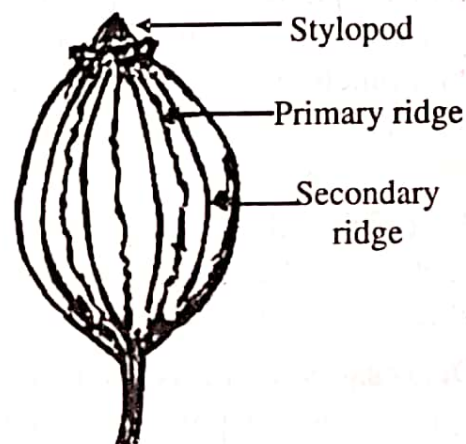


Figure 5.8: Coriander Fruit

5.3.3.2. Organoleptic Evaluation

Coriander fruit has the following organoleptic characteristics (figure 5.8):

- 1) **Colour:** Yellowish-brown to brown.
- 2) **Odour:** Aromatic.
- 3) **Taste:** Spicy and characteristic.
- 4) **Size:** 2-4mm in diameter and 4-30mm in length.
- 5) **Shape:** Sub-globular cremocarpous.
- 6) **Extra Features:** 10 wavy and inconspicuous primary ridges and 8 straight secondary ridges are present on the outer surface.

5.3.3.3. Chemical Constituents

Coriander is chemically constituted with **volatile oil** (0.3-1%), **fixed oil** (13%), and **proteins** (20%). Its volatile oil contains 90% of D-linalool (coriandrol), coriandryl acetate, and L-borneol, geraniol, and pinene (in trace amounts).

The leaves of coriander contain rich content of **vitamin A**. Coriander fruits yield 5-7% of ash. The composition of volatile oil varies extensively during the storage of crude drug.

5.3.3.4. Chemical Test

Prick Test: 2-5mg of powdered coriander is applied on the skin with a drop of saline solution, and then pricked into the skin. The reactions occurring are observed after 15 minutes. Reactions with a diameter of at least 3mm larger than the negative control (saline solution) are regarded as positive.

5.3.3.5. Therapeutic Efficacy

Coriander has the following therapeutic properties:

- 1) **Lowers Blood Sugar Level:** Its seeds and volatile oil lower the blood sugar level effectively. Therefore, any coriander product should be avoided by the patients taking medications for lowering blood sugar. Presence of coriander in daily diet of a diabetic patient helps in eliminating the disorder naturally. Coriander also helps in metabolism of carbohydrate and stimulates hypoglycaemic action. Coriander oil has dual function in treating diabetes:
 - i) It stimulates insulin secretion from pancreas, and
 - ii) It presents insulin-like activity at the cellular level.
- 2) **Ease Digestive Discomfort:** It acts as an antispasmodic drug by relaxing the contracted digestive muscles which leads to Irritable Bowel Syndrome (IBS) and other gut disorders.
- 3) **Decrease Blood Pressure:** It is used to decrease blood pressure in the patients of hypertension. It also has a diuretic effect, thus, helps in reducing blood pressure. Treatment of blood pressure also reduces the risk of blood clots and strokes.
- 4) **Fight Food Poisoning:** It possesses antimicrobial properties against harmful food-borne pathogens. Using coriander in cooking means, adding a protective layer to prevent food poisoning. Coriander contains an antibacterial compound which provides protection against the species of *Salmonella*. It contains high levels of dodecenal which is more potent than an antibiotic and is used for treating salmonella-based illness. Consumption of coriander helps to protect against lethal poisoning of food.
- 5) **Improve Cholesterol Levels:** It also helps to improve the levels of cholesterol in body. When tested on animals, it was found that coriander seeds significantly decreases bad cholesterol or LDL and increases healthy cholesterol or HDL.

- 6) **Help Urinary Tract Infections:** Its seeds are also used to treat UTIs. Dried coriander seeds in 1.5 teaspoons are soaked for overnight in 2 cups of water. The mixture is strained and consumed. This preparation not only provides relief from pain and discomfort of UTI, but also facilitates healing.
- 7) **Support Healthy Menstrual Function:** Its seeds help in maintaining the menstrual cycle by regulating the functions of endocrine gland and hormones associated with menstrual cycle. It is also used to control bloating, cramps, and pain occurring during the menstrual cycle.
- 8) **Prevent Neurological Inflammation and Disease:** It is also used to prevent neurological inflammation and disease. Alzheimer's disease, Parkinson's disease, multiple sclerosis, brain tumours, and meningitis are the neurodegenerative diseases which can be treated with coriander.

5.3.4. Fennel

Fennel yields both a herb as well as a spice. All the plant parts of fennel (roots, stalks and leaves, with the spice obtained from dried seeds) are eatable. Fennel has its origin in the Mediterranean. It is an ancient and common plant known to the ancient Greeks and spread throughout Europe by Imperial Rome.

Synonyms

Large fennel, Sweet fennel, Fennel fruit, Saunf (hindi), Fructus, and Foeniculi.

Biological Source

Fennel is the dried, ripe fruits of *Foeniculum vulgare* Mill.

Family

Umbelliferae

5.3.4.1. Occurrence and Distribution

Fennel is native to Mediterranean countries and Asia. It is mainly grown in France, Saxony, Japan, Galicia, Russia, and Persia. In India, it is cultivated throughout the country and often grows wild.

5.3.4.2. Organoleptic Evaluation

Fennel herb is stout, about 2m high, glabrous, and aromatic, having pinnately decomposed leaves. The drug consists partly of whole cremocarps and partly of mericarps (figure 5.9).

- 1) **Colour:** Greenish-brown.
- 2) **Odour:** Aromatic.

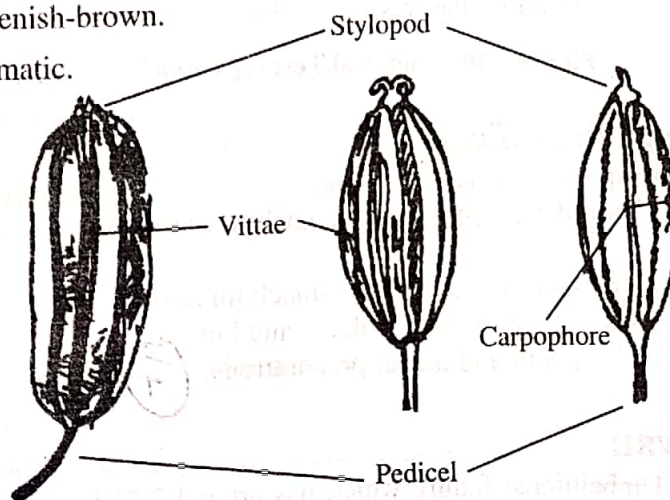


Figure 5.9: Fennel Fruit

- 3) **Taste:** Distinct, sweet, and aromatic.
- 4) **Size:** 0.5-1.0cm long and 2-4mm broad.
- 5) **Shape:** Slightly curved and oval.
- 6) **Surface:** Glabrous with 5 straight prominent straw-coloured primary ridges and bifid stylopod at the apex.

5.3.4.3. Chemical Constituents

Fennel contains 2-6.5% **volatile oil** and 12% **fixed oil**. The volatile oil contains 50-60% **phenolic ether** and 18-20% **fenchone** as its major constituents which impart a distinct odour and taste to the fruits. Methyl chavicol, anisic aldehyde, anisic acid, α -pinene, dipentene, limonene, and phellandrene are the other volatile oil constituents.

5.3.4.4. Chemical Test

The chemical test given by fennel is given in the **figure 5.10**:

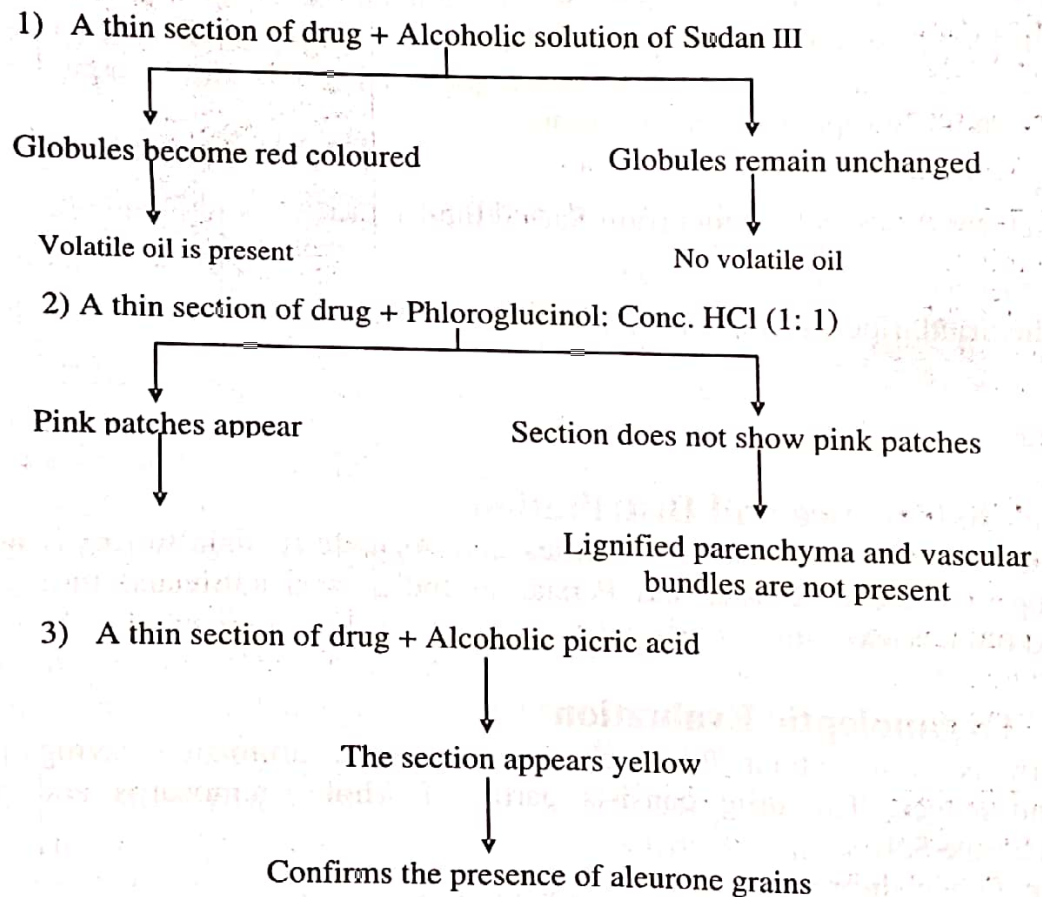


Figure 5.10: Chemical Test for Fennel

5.3.4.5. Therapeutic Efficacy

Fennel has the following therapeutic properties:

- 1) It is used as a stimulant, aromatic, stomachic, carminative, emmenagogue, and expectorant.
- 2) It is a common ingredient of cough and stomach mixtures.
- 3) It is used in diseases related to chest, spleen, and kidney.
- 4) Anethole is added in mouth and dental preparations. (7)