



COLLECTION AND PREPARATION OF CRUDE DRUGS FOR THE MARKET

(1) ERGOT

1) **Sexual Stage:** The ascospores infect the ovary of the rye plant & if conditions are favourable it develops hyphal strands. It forms a white mass over the ovary known as the mycelium.

2) **Asexual Stage:** The hyphal strands further develop invading the ovary & converting it to a hard violet sclerotium. Schlerotium contains stromatum which shows a globular stalk. It encloses bag like structures known as ascus containing ascospores. If these ascospores are liberated they infect another rye plant.

Ergot is collected from fields of rye when the sclerotia are fully developed and projecting from the spike, or they are removed from the grain by shifting. The size of the crop varies according to weather conditions.

(2) OPIUM

- Raw opium is the dried milky exudation obtained by incising the unripe but fully grown capsules of Papaver somniferum Family – Papaveraceae.
- The cultivation is done in the months between September and April. A gap of 25 cm should be maintained between two consecutive plants.
- Before sowing the seeds, they are mixed with sands properly.
- About five to six capsules appear on each plant and it flowers in the month of May-June. After the petals fall from the poppy, the pod, which is about the size of a golf ball, is lanced, and the opium latex is exuded.
- What you see here is one lancing, made with a special knife which has four blades about 1/16th inch apart, clearly visible in the photo.
- Initially the latex is pink; later it changes to black.
- Poppies are lanced in the afternoon and the latex is scraped off the next morning. Pods ripen (soften) at different times in the field.
- Each pod can be lanced from 4 to 7 times. The lancing takes a great deal of time and attention.

- Several pods can be scraped before the opium is placed into a container. So many pods to cut and scrape.
- The opium collected is weighed on a daily basis before an officer of the Narcotics Dept.
- After the latex has been collected, all the peasants from an area take their opium to a weighment center. Their opium has been scraped into standard containers of known weight.
- One-tenth of a hectare produces small amounts of latex.

(3) RAUWOLFIA

- Rauwolfia consists of dried roots of *Rauwolfia serpentine*, belonging to family Apocynaceae.
- Rauwolfia grows in tropical forests at an altitude of 1,200– 1,300 m at temperature 10– 40°C. There should be enough rain or irrigation for its cultivation.
- The soil should be acidic (pH 4– 6), clayey and manure is applied for better crop.
- Propagation is done by planting seeds, root cuttings or stem cuttings. Better drug is obtained when the propagation is carried out with fresh seeds.
- The plants should be protected from nematodes, fungus and Mosaic virus.
- The drug is collected mainly from wild plants. Roots and rhizomes are dug out in October– November when the plant roots are two to four years old.
- The aerial parts and roots are separated. The roots are washed and dried in air.
- The roots containing moisture up to 12% should be protected from light.
- Seasonal variation, genetic differences, geographic location, improper handling and drying, and other factors account for percentage differences in alkaloid amount.
- Rauwolfia should be packaged and stored in well-closed containers in a cool, dry place that is secure against insect attack.

(4) DIGITALIS

- It is a biennial herb which is grown in England and also cultivated in India, Europe and USA.
- It is propagated by seeds. It requires calcareous, acidic, sandy soil for growth. Seeds are very small in size i.e. 100 seeds weigh 40 to 70 mg.
- Seeds are mixed with fine sand and sown in nursery beds in march/april. Young seedlings are transplanted in sep/november.
- Crop is manured and kept free from weeds. Plantation done twice a year.
- Plant flowers in the month of april and is followed by fruiting.
- In the first year plant bears rosette leaves and in second year sessile leaves.
- Leaves collected in second year in the afternoon during august and September when 2/3rd of flowers are fully developed.

- Discolored leaves are rejected. After collection leaves are immediately brought to drying centre and dried in vacuum dryer at a temp. below 60°C till the moisture is not more than 5%.
- Dried leaves are packed in air tight container with suitable dehydrating agent.
- If the leaves are dried above 60°C the potency is lost due to chemical degradation.

(5) SENNA

- Senna plant is a small shrub of 1–1.5 m height with paripinnate compound leaves.
- Tinnevelly senna is mostly cultivated in well-ploughed, levelled, rich clayed semiirrigated land sometimes after paddy crop in South India.
- Propagation is done by seeds which are rubbed with coarse sand and sown thinly by broadcasting or in rows 30 cm apart, first during February–March and second after rain in July.
- Seeds germinate on the third day. The crop becomes ready for harvesting after about 2 months but first plucking of leaflets is done after 3 months of sowing when the leaves appear mature, thick and bluish in colour.
- Second plucking is followed after a month and subsequent pluckings after 4–6 weeks. The plant can survive for two to three years, but it is grown as an annual.
- After third plucking the plants are uprooted. Plant shows great tolerance for salinity. It sometimes shows die-back symptoms in which the branches or shoots die from the tip inward, which is caused by parasites or environmental conditions.
- Leaflets of Tinnevelly senna are collected by careful plucking from luxuriantly grown plants and compressed into bales.