

(Semester III)

Paper 7: PLANT RESOURCE UTILIZATION

THEORY

Unit 1: Origin of Cultivated Plants

Concept of Centres of Origin, their importance with reference to Vavilov's work.

(2 lectures)

Unit 2: Cereals

Wheat and Rice (origin, morphology, processing & uses), brief account of millets.

(5 lectures)

Unit 3: Legumes

General account, importance to man and ecosystem

(2 lectures)

Unit 4: Sugars & Starches

Morphology and processing of sugarcane, products and by-products of sugarcane industry.

Potato – morphology, propagation & uses.

(4 lectures)

Unit 5: Spices

Listing of important spices, their family and part used, economic importance with special reference to fennel, saffron, clove and black pepper

(5 lectures)

Unit 6: Beverages

Tea, Coffee (morphology, processing & uses)

(4 lectures)

Unit 7: Oils & Fats

General description, classification, extraction, their uses and health implications, *Brassica* and Coconut (Botanical name, family & uses)

(6 lectures)

Unit 8: Essential Oils

General account, extraction methods, comparison with fatty oils & their uses.

(3 lectures)

Unit 9: Natural Rubber

Para-rubber: tapping, processing and uses.

(3 lectures)

Unit 10: Drug-yielding plants

Therapeutic and habit-forming drugs with special reference to *Cinchona*, *Digitalis*, *Papaver* and *Cannabis*.

(4 lectures)

Unit 11: Tobacco

Tobacco (Morphology, processing, uses and health hazards)

(4 lectures)

Unit 12: Fibres

Classification based on the origin of fibres, Cotton and Jute (morphology, extraction and uses)

(6 lectures)

PRACTICALS

1. **Cereals:** Wheat (habit sketch, L. S/T.S. grain, starch grains, micro-chemical tests)
Rice (habit sketch, study of paddy and grain, starch grains, micro-chemical tests).
2. **Legumes:** Soya bean, Groundnut, (habit, fruit, seed structure, micro-chemical tests).
3. **Sugars & Starches:** Sugarcane (habit sketch; cane juice- micro-chemical tests), Potato (habit sketch, tuber morphology, T.S. tuber to show localization of starch grains, w.m. starch grains, micro-chemical tests).
4. **Spices:** Black pepper, Fennel and Clove (habit and sections).
5. **Beverages:** Tea (plant specimen, tea leaves), Coffee (plant specimen, beans).
6. **Oils & Fats:** Coconut- T.S. nut, Mustard – plant specimen, seeds; tests for fats in crushed seeds.
7. **Essential oil-yielding plants:** Habit sketch of *Rosa*, *Vetiveria*, *Santalum* and *Eucalyptus* (specimens/photographs).
8. **Rubber:** specimen, photograph/model of tapping, samples of rubber products.
9. **Drug-yielding plants:** Specimens of *Digitalis*, *Papaver* and *Cannabis*.
10. **Tobacco:** specimen and products of Tobacco.
11. **Fibre-yielding plants:** Cotton (specimen, whole mount of seed to show lint and fuzz; whole mount of fibre and test for cellulose), Jute (specimen, transverse section of stem, test for lignin on transverse section of stem and fibre).

ESSENTIAL READINGS

1. Kochhar, S.L. (2012). Economic Botany in Tropics, MacMillan & Co. New Delhi, India.
2. Wickens, G.E. (2001). Economic Botany: Principles & Practices. Kluwer Academic Publishers, The Netherlands.