Core Course

Code: Bot CC-II 18302
Title: Economic Botany
(Credits: Theory-4, Practical-2)
THEORY
Lectures: 60

Unit 1: Origin of Cultivated Plants **(18 lectures)**
Concept of Centres of Origin with reference to Vavilov's work. Examples of major plant introductions; Crop domestication and loss of genetic diversity; evolution of new crops/varieties, importance of germplasm diversity.
Cereals: Wheat and Rice (origin, morphology, cultivation & uses).
Legumes: Origin, morphology and uses of Chick pea and Pigeon pea. Importance to man and ecosystem.

Unit 3: Sources of sugars and starches **(14 lectures)**
Morphology and processing of sugarcane, products and by-products of sugarcane industry. Potato – morphology, propagation & uses.
Spices: Listing of important spices, their family and part used. Economic importance with special reference to fennel, saffron, clove and chillies.
Beverages: Tea, Coffee (morphology, processing & uses)

Unit 3: Sources of oils and fats **(13 lectures)**
General description, classification, extraction, their uses and health implications groundnut, coconut, soybean and mustard (Botanical name, family & uses). Essential Oils: General account, extraction methods, comparison with fatty oils & their uses.

Unit 4: Drug-yielding plants **(15 lectures)**
Therapeutic and habit-forming drugs with special reference to *Papaver* and *Cannabis*; Tobacco (Morphology, processing, uses and health hazards).

Timber plants: General account with special reference to teak and pine.

Fibers: Classification based on the origin of fibers; Cotton, Coir and Jute (morphology, extraction and uses).

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**: Soybean, Groundnut, (habit, fruit, seed structure, micro-chemical tests).
3. **Sources of sugars and 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. **Sources of oils and fats**: Coconut- T.S. nut, Mustard–plant specimen, seeds; tests for fats in crushed seeds.
7. **Essential oil-yielding plants**: Habit sketch of Rosa, Lavender 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**. Woods:** *Tectona, Pinus*: Specimen, Section of young stem.
12. **Fiber-yielding plants**: Cotton (specimen, whole mount of seed to show lint and fuzz; whole mount of fiber and test for cellulose), Jute (specimen, transverse section of stem, test for lignin on transverse section of stem and fiber).

Suggested 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.
3. Chrispeels, M.J. and Sadava, D.E. 1994 Plants, Genes and Agriculture. Jones & Bartlett _Publishers.