

### 1.5 Pharmaceutical Biology:

1. Scope and significance of biology in pharmaceutical Sciences. Modern concept of Biology i.e. Molecular, Physiological and biochemical aspects.

2. Classification of Plants with special reference to the following families, their diagnostic characteristic with emphasis on plants of medicinal and economic importance.

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|--------------------|---------------------|
| (i) Papaveraceae   | (vii) Rubiaceae     |
| (ii) Ranunculaceae | (viii) Apocynaceae  |
| (iii) Crucifereae  | (ix) Solanaceae     |
| (iv) Leguminoseae  | (x) Labiatae        |
| (v) Rutaceae       | (xi) Liliaceae      |
| (vi) Umbelliferae  | (xii) Zingiberaceae |

3. General structure, physiology, Life history and medico-economic importance of:

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|-----------------|----------------|
| (a) Bacteria    | (d) Yeast      |
| (b) Penicillium | (e) Mushroom   |
| (c) Claviceps   | (f) Lycopodium |

4. General morphology of shoot, flower, fruit and their importance and classification.

5. Structure of Typical plant cells and their non-living cell inclusions, Organisation of cells in to different plant tissues.

6. Anatomical study of normal Monocot and Dicot Root, stem and leaf including secondary growth of dicot stem and root.

7. Macro and micro plant nutrients, photosynthesis and its mechanism.

8. General structure and life history of parasites and Amoeba, Entamoeba, Trypanosoma, Plasmodium, Schistosoma, Taenia, Ascaris.

9. General structure and life history of insects including their relation to man and medicinal crops, of cockroach, mosquito, housefly silkworm and mites.

### PRACTICALS

- Care and use of microscope.
- Non-living cell inclusions and their micro-chemical tests.
- Preparation, microscopic examination and description of transverse section of stem, root and leaf of monocot and dicot plants (normal structures).

4. Morphological characteristics of the plant families mentioned in theory.
5. Preparation of herbarium sheets.
6. Morphology of flower and fruits.,
7. Structure of human parasites and insects mentioned in theory with the help of specimens and microscopic slides.

**Books Recommended:**

1. Y. D. Tyagi- Text book of Botany.
2. A. C. Dutta- Text book of Botany.
3. Khetrapal & Kotpal- Invertebrates.
4. H.S. Youngken- Pharmaceutical Botany, Pub. The Balkistan Company, Toronto.
5. K. Easau- Anatomy of seed plants, John Wiley and Sons.