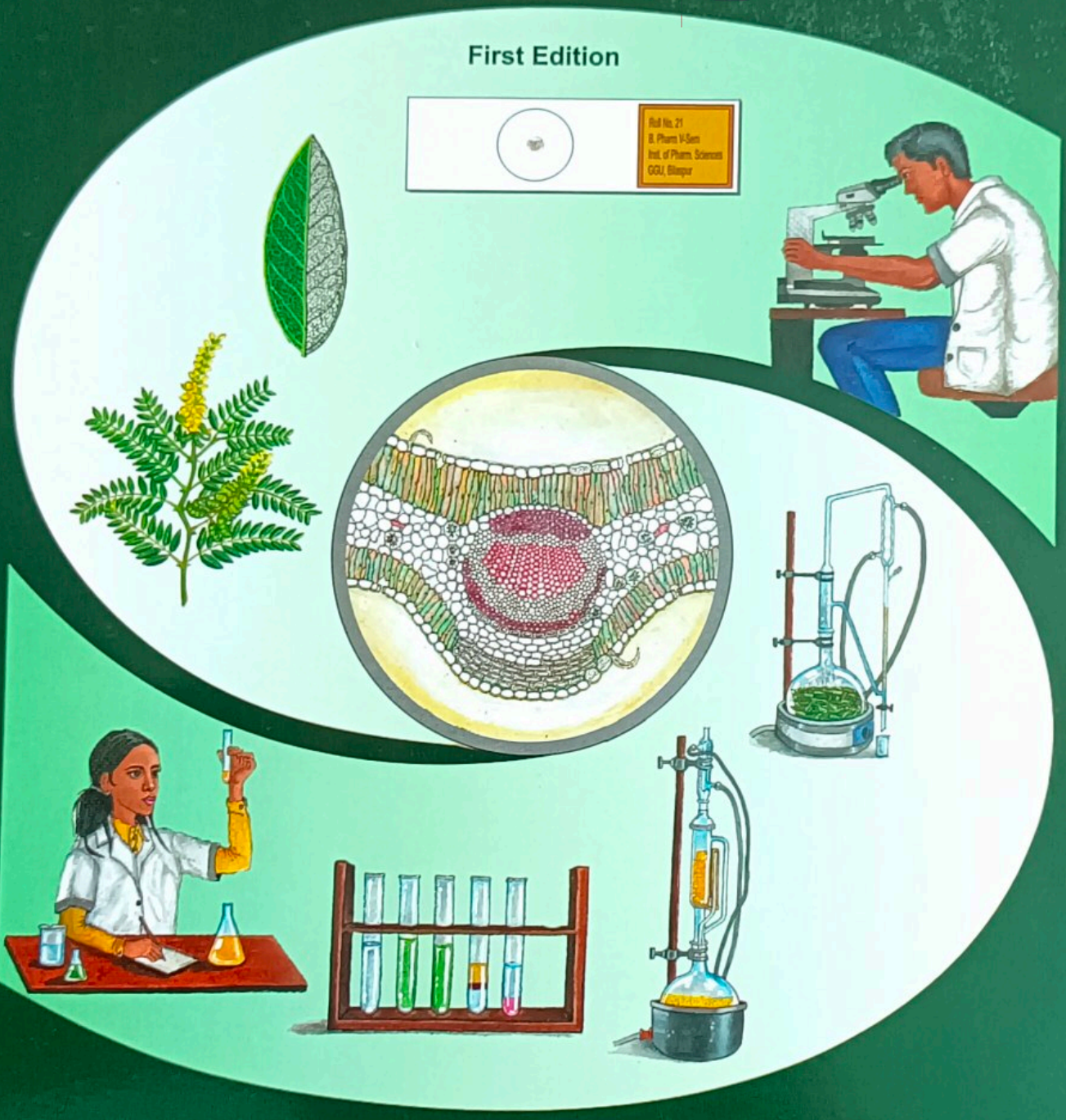
PRACTICAL PHARMACOGNOSY & PHYTOCHEMISTRY

Vinod D. Rangari

First Edition



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CONTENT

1 MICROSCOPE AND MICROSCOPIC TECHNIQUES

1.1 General Introduction to Practical Pharmacognosy : Pharmacognosy is the study of crude drugs derived from plants or other natural sources. As these crude drugs are derived from various plant species and varieties of diverse geographical and climatic conditions, it shows the variations in the morphological characters, phytochemical composition and thereby therapeutic activity. It is a duty and responsibility of the knowledge bearers of pharmacognosy to develop suitable methods for the standardization and quality control of the crude drugs so that the authentic drug would reach the end users. Practical pharmacognosy has the major aim and objective to provide the practical laboratory experience about the study of the drugs of natural origin to the students of pharmacy and other related discipline. Since the subject of pharmacognosy closely associates with the botany, phytochemistry and pharmacology, the practical study of the crude drug requires the study of morphology, microscopy and chemical constituents of the drugs. Therefore practical pharmacognosy covers the practicals associated with the study of:

1. Microscopy of Organised Crude Drugs
2. Microscopy of Unorganised Crude Drugs
3. Quantitative Microscopy
4. Preliminary Phytochemical Screening
5. Extraction and Isolation of Phytopharmaceuticals

Before dealing with the various aspects of the practical pharmacognosy it is important for the students to understand the instructions associated with these practical.

1.2 Instructions for Students : Students are required to be fully prepared for understanding theoretical concepts and applications associated with the study of particular drugs.

1. Students should wear clean white apron during the practical. If necessary the mask and gloves may be used while handling the crude drug.
2. They should always carry practical record, rough notebook and required material associated with the practicals.
3. Listen carefully to the lecture given by teacher about importance of subject, skills to be developed, information about equipment, instruments, procedure, method of continuous assessment, tentative plan of working laboratory, and total amount of work to be done.
4. Students should perform the practical only at the place which allocated to them.
5. Understand the purpose of experiment and its practical applications.

6. Write the answer of the questions allotted by teacher during practical hours if possible or afterwards, but immediately.
7. Students should not hesitate to ask any difficulty faced during the practical.
8. Students shall develop maintenance skill as expected by the industries.
9. Students shall attempt to develop related hands-on -skills and gain confidence.
10. Students shall focus on development of practical skills rather than theoretical or codified knowledge.
11. Students shall develop habits of evolving more ideas, innovations, skills etc. than included in the scope of the manual.
12. Students should develop the habit of not to depend totally on the teachers but to develop self- learning techniques.
13. Students should develop the habit to complete the practical exercise continuously and progressively on the scheduled dates and should get the assessment done.
14. Students should clean the platform before leaving the laboratory.

The students has to deal with the crude drugs for the practicals. Brief information has been furnished here about the crude drugs, selected for the practical study in this book.

1.3 Crude Drugs : One of the important aspect of the practical pharmacognosy is the morphological and microscopic study of the crude drugs using microscope. These crude drugs are used in medicine due to the characteristic phytochemical constituents that are responsible for their biological activity. To faciliate the categorization of the crude drugs, they can be grouped together in their specific chemical classes. The crude drugs which are described in this book for the pharmacognostic study are enlisted in Table-1.1 and 1.2.

Table 1.1: List of selected organized crude drugs.

Glycosides and Aglycones	Essential Oils
1. Senna Leaf	1. Fennel Fruits
2. Senna Pods	2. Coriander Fruits
3. *Digitalis purpurea* Leaf	3. Caraway Fruits
4. *Digitalis lanata* Leaf	4. Cumin Fruits
5. Thevetia Leaf	5. Dill Fruits
6. Rhubarb Rhizome	6. Anise Fruits
7. Cascara Bark	7. Nutmeg Fruit
8. Strophanthus Seed	8. *Mentha piperita* Leaf
9. Indian Squill	9. *Mentha spicata* Leaf
10. European Squill	10. *Ocimum sanctum* Leaf
11. Asparagus Roots	11. Eucalyptus Leaf
12. Liquorice roots and stolones	12. Lemongrass Leaf
13. Ginseng Roots	13. Cinnamon Bark
14. Withania Roots	14. Cassia Bark
15. Dioscorea Rhizome	15. Sandalwood
16. Wild Cherry Bark	16. Clove Buds
17. Black Mustard Seeds	17. Cardamom seeds