TEXTBOOK OF

PHARMACOGNOSY

For Diploma in Pharmacy First Year

Based on Education Regulation 2020 (New PCI Syllabus)

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We are thankful to Dr. Akanksha Jain, Assistant Professor at Shri Shankaracharya Mahavidyalaya, Juwani road, Bhilai for the Hindi translation of this book. She completed her B.Sc. Biotechnology in the year 2009 from Govt. Digvijay autonomous P.G. College Rajnandgaon, Chhattisgarh. Her M.Sc. (Biotechnology) in the year 2011 from Pandit Ravishankar Shukla University, Raipur (C.G.) and Ph.D. Biotechnology in the year 2020 from Guru Ghasidas Vishwavidyalaya, Bilaspur India. She is a GATE and CGSET qualified and has 06 years of teaching and research experience. She is recipient of Start-up India (Abhinav RABI-RAFTAAR IGKV Raipur, IARI Government of India) In addition, she was a university merit (forth rank) holder and received gold medal for her academic excellence in her under graduation. She has several awards in her credits. She is also an approved reviewer in Elsevier Biocatalysis and Agricultural Biotechnology journal. She has published various research papers in reputed journals and published 01 Indian Patent to her credits. Her area of interest is in the field of Plant Biotechnology, Microbiology, Molecular DNA Fingerprinting, Pharmacognosy and Biochemistry.

Preface

The textbook of Pharmacognosy has been written for students of diploma in pharmacy first-year students keeping in mind specific requirements of the Pharmacy Council of India (PCI), Education Regulation - 2020. This is a bilingual book in both English and Hindi for easy understanding to students. This book is covering the entire syllabus as per new PCI norms including practicals and previous year question papers.

This book containing eleven chapters staring with history and scope of pharmacognosy. Further, chapter including classification of drugs, quality control and analysis tests for herbal drugs. An individual chapter for different categories of drugs based on their biological effects. The book also containing description of plant fibres used as surgical dressings, traditional system of medicine and methods of preparation of Ayurvedic formulation. The later chapters describing about aromatic plants, herbs as food, herbal cosmetics and phytochemical investigation of drugs.

I would like to acknowledge the invaluable contributions provided by the Probecell editorial team. I give great thanks to the graphic designers who were instrumental in preparing much of the artwork for this text. I would also like to acknowledge my colleagues and students for their willingness to serve as test subjects for many of the useful contents in this book. Finally, I would like to thank my teachers and parents for their guidance, support, and encouragement throughout the process of completing this book.

"Our nation is like a tree and to the original trunk of Swarajya, two huge branches have emerged in the form of Swadeshi and Boycott" — Bal Gangadhar Tilak

We expect to bring out new editions in the coming years. Suggestions to improve the content are welcome from the teachers and students.

Bhilai
10.09.2021

Mukesh Kumar Sharma
Gajendra Singh
Ashish Majumdar
Bichitrananda Tripathy
Shakti Jaiswal

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CHAPTER 1
DEFINITION, HISTORY AND SCOPE OF PHARMACOGNOSY

Definition

Pharmacognosy is the branch of science in which study plants or other natural sources as a possible source of drugs and medicine. Pharmacognosy “derived from the Greek word **Pharmakon** means a drug, and **gignosco** means to acquire knowledge.

History

- In which the term "pharmacognosy" was first time used by the Austrian physician Schmidt in the year 1811 and 1815 name Crr. Anotheus Seydler in their work titled Analecta Pharmacognostica.
- Originally—during the 19th century —"pharmacognosy" was used to define the branch of medicine or commodity sciences (Warenkunde in German) which deals with drugs in their crude, or unprepared, form. Crude drugs are the dried, unprepared material obtains from natural sources such as plant, animal or mineral origin, used for medicine.
- At the beginning of the 20th century, the subject had developed mainly on the botanical side concerned with the description and identification of drugs such as their whole state and in powder form. The branches of pharmacognosy are still of fundamental importance, particularly for pharmacopoeial identification and quality control purposes, but rapid development in other areas has extremely expanded the subject.
- The emergence of the 21st century brought a rejuvenation of pharmacognosy and its conventional botanical approach has been widening up to molecular and metabolomic levels.

परिभाषा

- फार्माकोगोनोसी विज्ञान की वह शाखा है जिसमें दवाओं और दवाओं के संभावित स्रोत के रूप में पौधों या अन्य प्राकृतिक स्रोतों का अध्ययन किया जाता है। फार्माकोगनॉसी "ग्रीक शब्द फार्माकॉन से व्युत्पन्न है जिसका अर्थ है एक दवा, और गिग्नोस्को का अर्थ है ज्ञान प्राप्त करना।

इतिहास

- जिसमें " फार्माकोगोनोसी " शब्द का प्रयोग पहली बार ऑस्ट्रियाई चिकित्सक श्मिट द्वारा वर्ष 1811 और 1815 में एनोथियस सीडलर ने अपने काम में एनालेक्टा फार्माकोग्नोस्टिका शीर्षक दिया।
- मूल रूप से–19वीं शताब्दी के दौरान-"फार्माकोगनॉसी" का प्रयोग औषधि या वस्तु विज्ञान (जर्मन में वारेनकुंडे) की शाखा को परिभाषित करने के लिए किया गया था, जो दवाओं के साथ उनके कच्चे, या अप्रस्तुत, रूप में संबंधित है। कच्ची दवाएं प्राकृतिक स्रोतों जैसे कि पौधे, पशु या खनिज मूल से प्राप्त सूखे, अप्रस्तुत सामग्री हैं, जिनका उपयोग दवा के लिए किया जाता है।
- 20वीं सदी की शुरुआत में, विषय मुख्य रूप से वानस्पतिक पक्ष पर विकसित हुआ था, जो दवाओं के विवरण और पहचान से संबंधित था जैसे कि उनके पूरे राज्य और पाउडर के रूप में।

फार्माकोगनॉसी की शाखाएं अभी भी मौलिक महत्व की हैं, विशेष रूप से फार्माकोपियल पहचान और गुणवत्ता नियंत्रण उद्देश्यों के लिए, लेकिन अन्य क्षेत्रों में तेजी से विकास ने इस विषय का अत्यधिक विस्तार किया है।

- 21वीं सदी के उदय ने औषधि विज्ञान का कायाकल्प किया और इसका पारंपरिक वानस्पतिक दृष्टिकोण आणविक और चयापचय स्तरों तक विस्तृत हो रहा है।

History of some medicinal plant are given below-

- In which study of drugs used by traditional healers is an important object of pharmacognostic research
- In which Sumerians and Akkadians (3rd millennium BC)
- In which Egyptians (Ebers papyrus, 1550 BC)
- In which Hippocrates (460-377 BC) "The Father of Medicine"
- In which Dioscorides (40-80 AD) "De Materia Medica" (600 medicinal plants)
- In which the era of European exploration (16th and 17th century)
- In the case of 18th century, Pharmacognosy: Johann Adam (1759-1809) A surgeon and ophthalmologist" In 1811 his Lehrbuch der Materia Medica was published, which was work on medicinal plants and their properties. Linnaeus (naming and classifying plants)
- The end of the 18th century in which crude drugs were still being used as powders, simple extracts, or tinctures
- In which era of pure compounds (In 1803, a new era in the history of medicine)
- The Isolation of morphine from opium in the 18th century.
- Strychnine (1817)
- In the quinine and caffeine (1820)
- In the nicotine (1828)
- In the atropine (1833)
- Cocaine (1855)
- In which 19th century, the chemical structures of many of the isolated compounds were determined
- In which 20th century, the discovery of important drugs from the animal kingdom, particularly hormones and vitamins.
- microorganisms have become a very essential source of drugs.

कुछ औषधीय पौधों का इतिहास नीचे दिया गया है-

- जिसमें पारंपरिक चिकित्सकों द्वारा उपयोग की जाने वाली दवाओं का अध्ययन फार्माकोग्नॉस्टिक अनुसंधान का एक महत्वपूर्ण उद्देश्य है
- जिसमें सुमेरियन और अक्कादियन (तीसरी सहस्राब्दी ईसा पूर्व)
- किस मिस्रवासी (एबर्स पेपिरस, 1550 ई.पू.)
- जिसमें हिप्पोक्रेट्स (460-377 ईसा पूर्व) "चिकित्सा के पिता"
- जिसमें डायोस्कोराइड्स (40-80 ईस्वी) "डी मटेरिया मेडिका" (600 औषधीय पौधे)
- जिसमें यूरोपीय अन्वेषण का युग (16वीं और 17वीं शताब्दी)
- 18वीं शताब्दी के मामले में, फार्माकोगनॉसी: जोहान एडम (1759-1809) एक सर्जन और नेत्र रोग विशेषज्ञ" 1811 में उनका लेहरबुच डेर मटेरिया मेडिका प्रकाशित हुआ, जो औषधीय पौधों और उनके गुणों पर काम करता था। लिनिअस (पौधों का नामकरण और वर्गीकरण)