A Textbook of

Herbal Drug Technology

(As per PCI Syllabus Sub code: BP603T)
[Third year B. Pharmacy Sem V]

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HERBAL
DRUG TECHNOLOGY

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PREFACE

The **Herbal Drug Technology** book teaches the basics of the herbal drug industry, such as raw material quality, quality guidelines for herbal drugs, Ayurvedic formulations, herbal cosmetics, natural sweeteners, nutraceuticals, and so on. It also discusses herbal drug good manufacturing practises (GMP), patenting, and regulatory issues. This book is written strictly according to the **PCI syllabus,** with clear explanations and simple language, and is a must-read for **B.Pharm and M.Pharm students**. You'll learn about drug evaluation according to WHO and ICH guidelines, herbal drug stability testing, and the patenting and regulatory requirements of natural products. Students will also understand the significance of raw materials as a source of herbal drugs, from cultivation to herbal drug products.

This book covers biodynamic agriculture, Indian systems of medicine, herbal drug and herb—food interactions, herbal excipients, herbal formulations, natural product patenting and regulatory requirements, regulatory issues, general introduction to the herbal industry, and good manufacturing practises of Indian systems of medicine. Apart from general topics, it strikes a balance between essential and advanced areas of knowledge. The subject is comprehensive, written in simple language, with well-labeled diagrams and important tables in both the theoretical and practical sections.

"Herbal Drug Technology": From Plant to Medicine"" is an essential resource for anyone interested in herbal medicine, whether a student or a layperson. With its thorough coverage and simple language, you'll gain a thorough understanding of the fascinating world of herbal medicine and its role in modern healthcare.

Abbreviations

Active Pharmaceutical Ingredients (APIs)
Associated Chambers of Commerce and Industry of India (ASSOCHAM)
Atomic Energy Agency (IAE)
Ayurvedic Drug Manufacturers' Association (ADMA)
Ayurvedic Drug Manufacturing Association (ADMA)
Ayurvedic, Siddha and Unani (ASU)
Banaras Hindu University (BHU)
Buyer-Seller Meetings (BSMs)
Carboxylic Acid (-COOH)
Cardiovascular Diseases (CVD)
Central Council for research in Ayurveda and Siddha (CCRAS)
Central Council for Research in Unani Medicine (CCRUM)
Central Council for Research in Unani Medicine (CCRUM)
Central Drug Research Institute (CDRI)
Central Drug Standard Control Organization (CDSCO)
Central Institute for Medicinal and Aromatic Plants (CIMAP)
Conservation Agriculture (CA)
Control Drugs Laboratory (CDL)
Docosahexaenoic Acid (DHA)
Drug Consultative committees (DCC)
Drug Delivery Systems (DDS)
Drug Technical Advisory Board (DTAB)
Eicosapentaenoic Acid (EPA)
Fingerprint Evaluation of Herbals (FEH)
Food and Agricultural Organization (FAO)
Food and Drug Administration (FDA)
Foreign Trade Policy (FTP)
Foundation for Revitalization of Local health Traditions (FRHLT)
Gastrointestinal (GI)
Good Agricultural Practices in Cultivation (GACP)

Good Manufacturing Practice (GMP)

Herbal Medicinal Product (HMP)

Indian Council for Medical Research (ICMR)

Indian Council for Scientific and Industrial Research (CSIR)

Indian Institute of History of Medicine and Medical Research (IHMMR)

Indian Medical Practitioners Co-operative Pharmacy and Stores ltd. (IMPCOPS)

Indian System of Medicine (ISM)

Intellectual Property (IP)

Intellectual Property Rights (IPRs)

International Association for the study of Traditional Asian Medicine (IASTAM)

Irritable Bowel Syndrome (IBS)

Lipid-Rich (LDL)

Low-Density Lipoprotein (LDL)

Market Access Initiative (MAI)

National Botanical Research Institute (NBRI)

National Bureau of plant Genetic Resources (NBPGR)

National Chemical Laboratory (NCL)

National Institute for Mental Health and Neurosciences (NIMHANS)

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)

National Institute of Science Communication (NISCOM)

National Institutes of Health's (NIH)

Nicholas Piramal Research Centre (NPRC)

Novel Drug Delivery System (NDDS)

Organisms (GMOs)

Pharmaceutical Education and Research Development (PERD Centre)

Pharmaceuticals Export Promotion Council (PHARMEXCIL)

Plant Breeders Rights (PBR)

Plant Variety Rights (PVR)

Plant-Incorporated Protectants (PIPs)

Polyvinylpyrrolidone (PVP)

Regional Medical Research Centre (ICMR)

Regional Research Laboratory (RRL)

Relative Humidity (RH)

Reverse Buyer-Seller Meetings (RBSMs)

Rheumatoid Arthritis (RA)

Shellac & Forest Products Export Promotion Council (SHEFEXIL)

Standard Operating Procedure (SOP)

Traditional Knowledge (TK)

Tropical Botanical Garden and research Institute (TBGRI)

World Health Organization (WHO)

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ABOUT THE AUTHORS

At the moment, **Dr. Chavan M. J.** is the principal of the Amrutvahini College of Pharmacy in Sangamner. He holds an M. Pharm from RGUHS University in Bangalore and a B. Pharm from Savitribai Phule Pune University in Pune. Dr. Babasaheb Ambedkar Marathwada University in Aurangabad is where he received his Ph.D. One Indian Patent has been issued by him. He is interested in the phytochemical and pharmacognostic analysis of medicinal plants. His areas of interest in study include standardization and evaluation of botanicals as well as ethnomedical research. He authored 21 research papers in different journals across the nation and abroad. He had a book published. and two Springer book chapters. He has organized and taken part in several conferences and workshops at the national, international, and state levels.

Dr. Ghangale G. D. is an assistant professor at the Sangamner-based Amrutvahini College of Pharmacy. She graduated from Pune University with a B.Pharm. Ph.D. in Pharmacy from Bhagwant University,Ajmer, Rajasthan; M.Pharm. with Distinction from Pune University. In addition to granting two Indian design patents and one German patent, she published one Indian patent. She has authored 21 research and review papers that have been published in national and international journals. She tries to get involved in highlighting the student orientation and activities and is engaged in all co-curricular, extracurricular, and curricular activities. I'm interested in new herbal preparations and herbal remedies for treating various diseases. And in the assessment of new herbal medicines using phytopharmacology and pharmacognosy.

Dr. Shilpa S. Kolhe presently working as Professor at Vishal Institute of Pharmaceutical Education and Research Ale, she has completed B. Pharm form Savitribai Phule Pune university, Pune and M.Pharm from Solapur university. She has completed PhD from Bhagwant university, Ajmer. she published 1 Indian patent and also granted 2 Indian design patent. Her research interest includes Phytopharmacy and herbal novel formulations. She published 3 review and 7 research papers in various UGC care, Scopus journals. She participated in 15 national, inter national and state level conference and workshops. She also work as evaluator for state level poster presentation competition.

Mr. Suhas N. Ghodekar completed his post-graduation from Bharti Vidyapeeths Poona College of Pharmacy in Pune in 2009 in the subject of pharmacognosy. They started their professional careers in 2009 at Rajmata Jijau Shikshan Prasarak Mandals College of Pharmacy, Dudulgaon, Pune, where they have since been a driving force, accumulating a wealth of experience spanning more than 14 years. They were equipped with a thirst for knowledge and a vision for transformative change. Through his more than 6 national and international publications, Mr. Suhas Narayan Ghodekar has made an enduring impact on the field of pharmacy outside of the boardrooms and classrooms. In his field, he also held one design patent. Their work has been a shining example of innovation, blazing the way for advancement in their field. Additionally, Mr. Suhas Narayan Ghodekar has been participated in more than 15 national and international conferences and workshops. Their involvement, and contributions have had a significant impact on the discussions that foster advancement and innovation in their field of expertise. Additionally, they were picked as a state-level competitor in the 2018 Avishkar competition held at Rahuri Krishi vidyapeet, Ahemadnagar, from Savitribai Phule Pune University.

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