

BHARATI VIDYAPEETH
(DEEMED TO BE UNIVERSITY), PUNE, INDIA
PhD Entrance Test – 2026
SECTION-II: Pharmacognosy - 50 Marks

S. No.	Topics
1	Cultivation: Methods of propagation and factors (Endogenous and exogenous) affecting cultivation of Medicinal and Aromatic plants. Influences of altitude temperature, humidity, rainfall /irrigation, Soil fertility and fertilizers, types of manure and fertilizers. Weeds and weed control. Diseases and Pests of medicinal and Aromatic crops and their control.
2	General introduction, chemistry & chemical classes, therapeutic uses and commercial applications of following secondary metabolites: Alkaloids (Vinca, Rauwolfia, Opium), Volatile oils (Mentha, Clove, Cinnamon), Glycosides (Senna, Aloes, Digitalis), Tannins (Catechu, Pterocarpus) Resins (Guggul, Ginger, Asafoetida).
3	Source, phytochemistry (isolation, identification, chemical nature), and of following phytopharmaceuticals. 1) Anticancer: (Taxol, Camptothecin, vinblastine) 2) Nervous system activities: Hypericin, Valepotriates, Gingkolides 3) CVS activities: Colenol, Streptokinase 4) Anti-inflammatory: Curcuminoids, Boswellic acid, Serratiopeptidase. 5) Miscellaneous: Silymarin, Artemisinin, Resveretrol
4	Basics of Phytochemistry Modern methods of extraction, application of latest techniques like Spectroscopy, chromatography and electrophoresis in the isolation, purification and identification of crude drugs.
5	WHO guidelines for Standardization of crude drugs
6	Plant tissue Culture Historical development, Totipotency, Culture media, Types of cultures, Cell suspension, Organogenesis, Embryogenesis, Protoplast culture, Cell Immobilization, Biotransformation, Generation and production of secondary metabolites, Germplasm conservation.
7	Fundamental concepts of Ayurveda, Siddha, Unani and Homoeopathy systems of medicine. Different dosage forms of the Indian systems of medicines.
8	Herbal Cosmetics

References:

1. Mukherjee Pulok, Quality Control of Herbal Drugs, Business Horizons Limited, New Delhi.
2. Advances in Natural Product Chemistry, extraction and isolation of biologically active compounds. S. Natori et al., Wiley, New York.
3. Phytochemical methods by J.B. Harborne, Chapman and Hall, International Ed., London.
4. Modern methods of plant analysis by Peach and Tracey, Vol. II, IV, Springer Verlag.
5. G.E. Trease and W.C. Evans., Pharmacognosy, W.B. Saunders Co. Ltd., Harcourt Publishers Ltd. UK.
6. Chaudhari R.D., Herbal Drug Industry, Eastern Publication.

7. Quality Control Methods for medicinal plant material, WHO Geneva.
8. Wagner H, Bladt S, 1996. Plant Drug Analysis- A Thin Layer Chromatography Atlas, 2nd Ed., Springer-Verlag, Berlin.
9. Stahl Egon, Thin layer chromatography, 2nd Edition, Springer Publication.
10. Mukherjee PK, 2003. GMP for Indian system of medicine. In GMP for Botanicals. Verpoorte R, Mukherjee PK (Edn.), Business Horizons Limited, New Delhi.
11. Herbal Drug technology by SS Agrawal and M Paridhavi, Orient Longman
12. Indian Herbal Pharmacopoeia, Vol. I- II, SS Handa, RRL Jammu Tawi, and IDMA Mumbai.
13. The Aurvedic Pharmacopoeia of India, 1999. Government of India, Ministry of Health and Family Welfare, Department of Indian Systems of Medicine and Homeopathy, New Delhi.
14. Standardization of Botanicals by V. Rajpal, Vol. I and Vol II, Eastern Publishers, New Delhi.
15. Houghton P, Mukherjee PK. Evaluation of Herbal Medicinal Product, Pharmaceutical Press, London, 2009.
16. British pharmacopoeia, 2008. The department of Health, Vol I- IV, British Pharmacopoeia Commission, London.
17. Neutraceuticals by Lisa Rapport and Brain Lockwood.
18. Pharmacognosy by CK Kokate, APPurohit and SB Gokhale, Nirali Prakashan, Pune
19. Pharmacognosy by VD Rangari, Career Publications, Nasik
20. Medicinal Plant Biotechnology by A G Namdeo, Career Publications, Nasik.
21. Quality Standards of Indian Medicinal Plants Vol. I- V, Indian Council of Medical Research, New Delhi.

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