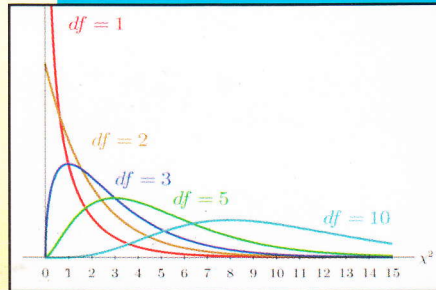
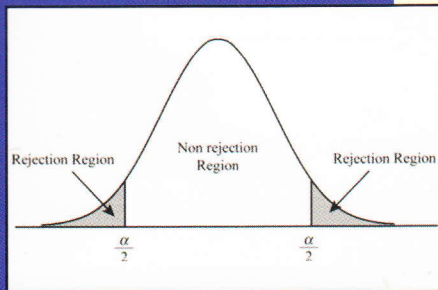
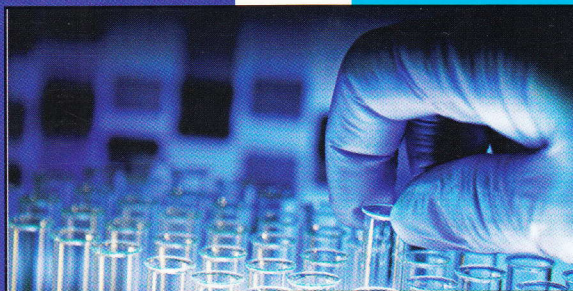


AS PER PCI REGULATIONS
THIRD YEAR B. PHARM.
SEMESTER-VI

EXPERIMENTAL PHARMACOLOGY-III

Dr. GHANSHYAM PANIGRAHI

Dr. ARJUN PATRA



 **NIRALI**
PRAKASHAN
ADVANCEMENT OF KNOWLEDGE

ABOUT THE AUTHORS



Dr. Ghanshyam Panigrahi is working as Associate Professor and Head, Department of Pharmacology, Royal College of Pharmacy and Health Sciences, Berhampur, Odisha. He has deep insight into experimental pharmacology and preclinical testing of drugs. He has experience of 13 years in teaching experimental pharmacology to undergraduate and postgraduate students. His fields of research interest are natural product research, diabetes mellitus and associated disorders. His research work has been published in more than 35 research articles. He has guided numbers of M. Pharm. and Ph.D. scholars to carry out their research work. Dr. Panigrahi is a life member of Indian Pharmacological Society (IPS) and The Association of Pharmaceutical Teachers of India (APTI).



Dr. Arjun Patra obtained postgraduate and doctorate degree from Birla Institute of Technology, Mesra, Ranchi. Recently he has completed Postdoctoral Research in USA under Raman Fellowship funded by University Grants Commission. He has around 16 years of teaching experience in various pharmacy colleges at Berhampur, Moradabad and Jaipur, and currently working as Assistant Professor at Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, Chhattisgarh. Dr. Patra has supervised M. Pharm. and Ph.D. students and published and presented research papers in national/international journals/conferences. Dr. Patra specializes in Pharmacognosy and has studied a wide range of plants for their phytochemical and pharmacological potential. Dr. Patra's major fields of research interest are natural product exploration, nano-delivery of natural products for treatment of cancers and screening of medicinal plants for different pharmacological activities.



Email : niralipune@pragationline.com

Website : www.pragationline.com

Also find us on  www.facebook.com/niralibooks

 [@nirali.prakashan](https://www.instagram.com/nirali.prakashan)



Contents

Experiment No.	Experiment Title	Page
	Guide to use this book	
1.	Dose calculation in pharmacological experiments. (Contributed by Dr. Ghanshyam Panigrahi and Dr. Arjun Patra)	1
2.	Antiallergic activity by mast cell stabilization assay. (Contributed by Dr. Ghanshyam Panigrahi and Dr. Arjun Patra)	8
3.	Study of anti-ulcer activity of a drug using pylorus ligand (SHAY) rat model and NSAIDS induced ulcer model. (Contributed by Dr. Ghanshyam Panigrahi and Dr. Arjun Patra)	12
4.	Study of effect of drugs on gastrointestinal motility. (Contributed by Dr. Ghanshyam Panigrahi and Dr. Arjun Patra)	19
5.	Effect of agonist and antagonists on guinea pig ileum. (Contributed by Dr. Ghanshyam Panigrahi and Dr. Arjun Patra)	23
6.	Estimation of serum biochemical parameters by using semi-autoanalyser. (Contributed by Dr. Ghanshyam Panigrahi and Dr. Swaha Satpathy)	27
7.	Effect of saline purgative on frog intestine. (Contributed by Dr. Ghanshyam Panigrahi and Dr. Arjun Patra)	30
8.	Insulin hypoglycemic effect in rabbit. (Contributed by Dr. Ghanshyam Panigrahi and Dr. Swaha Satpathy)	40
9.	Test for pyrogens (rabbit method). (Contributed by Dr. Swaha Satpathy and Dr. Arjun Patra)	45
10.	Determination of acute oral toxicity (LD50) of a drug from a given data. (Contributed by Dr. Ghanshyam Panigrahi and Dr. Swaha Satpathy)	49
11.	Determination of acute skin irritation / corrosion of a test substance. (Contributed by Dr. Ghanshyam Panigrahi and Dr. Arjun Patra)	61
12.	Determination of acute eye irritation / corrosion of a test substance. (Contributed by Dr. Ghanshyam Panigrahi and Dr. Arjun Patra)	67
13.	Calculation of pharmacokinetic parameters from a given data. (Contributed by Dr. Gourishyam Pasa and Dr. Ghanshyam Panigrahi)	74
14.	Biostatistics methods in Experimental Pharmacology (central tendency) (Contributed by Dr. Gourishyam Pasa)	89
15.	Biostatistics methods in Experimental Pharmacology (student's t test, ANOVA). (Contributed by Dr. Gourishyam Pasa)	98
16.	Biostatistics methods in Experimental Pharmacology (Chi-square test, Wilcoxon Signed Rank test). (Contributed by Dr. Gourishyam Pasa)	110
	Appendices	115
	Bibliography	121

Experiment No. 2

ANTIALLERGIC ACTIVITY BY MAST CELL STABILIZATION ASSAY

(Chapter contributed by Dr. Ghanshyam Panigrahi and Dr. Arjun Patra)

Purpose:

At the end of practical class, the students shall be able to:

1. Know about the mechanism of allergic condition.
2. Know the different anti-allergic drugs and their mechanism.
3. Know about mast cell stabilizing assay method.

Terminology:

Allergy: An allergy is an immune system response to a foreign substance (allergens) especially a particular food, pollen, fur or dust. Allergic diseases are a number of conditions caused by hypersensitivity of the immune system to typically harmless substances in the environment. These diseases include; hay fever, food allergies, atopic dermatitis, allergic asthma, and anaphylaxis. Symptoms may include; red eyes, an itchy rash, sneezing, a runny nose, shortness of breath, cutaneous wheel and flare reaction, and wheezing.

Mast cell stabilizer: These are the drugs which stabilize the mast cells and other inflammatory cells by inhibiting degranulation.

Description:

Most common causes of allergic disorders in human are rhinitis, sinusitis, atopic dermatitis, asthma, pollinosis and food allergy. Hypersensitivity of the immune system to a specific antigen (allergens) plays a central role in the initiation of allergic conditions such as asthma and allergic rhinitis. Key components of this process include; the lymphocytes (which are a major cellular infiltrate in asthmatic lung) and the immunoglobulin E (IgE) antibody (which is over produced in majority of people who suffer from allergic condition).

It has been reported that in an immediate type of allergic reaction the allergen triggers B-cells to produce IgE and IgG antibodies, which react with these allergens, and gets bound to high affinity receptor Fc epsilon receptor I (FcεRI) on the surface of circulating basophils and tissue mast cells. Mast cells are well known as critically important components in various biologic processes of allergic diseases. These are found relatively large numbers in the mucosa of respiratory, gastro-intestinal, urinary tract, skin and near blood or lymphatic vessels, these cells are supposed to express surface membrane receptors with high affinity