# EXPERIMENTAL PHARMACOLOGY-III

Dr. GHANSHYAM PANIGRAHI   **Dr. ARJUN PATRA**
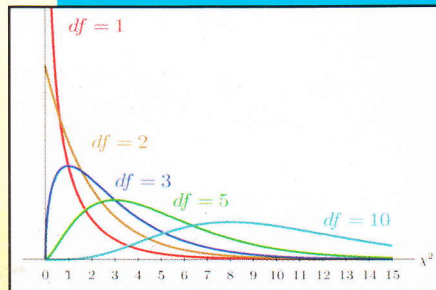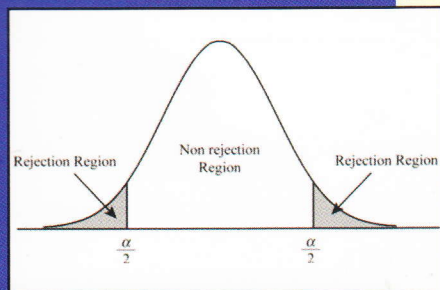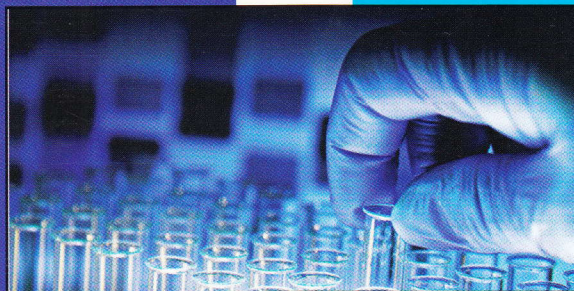
ABOUT THE AUTHORS

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.

Contents

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Experiment No. 12

DETERMINATION OF ACUTE EYE IRRITATION/CORROSION OF A TEST SUBSTANCE

(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 eye irritation and eye corrosion.
2. Know about the OECD Test Guideline 405 for eye irritation/corrosion.
3. Know about testing and evaluation strategy for eye irritation/corrosion.

Terminology:

Eye Irritation: It is defined as "the production of changes in the eye following the application of test substance to the anterior surface of the eye, which are fully reversible within 21 days of application" (UNECE, Part 3.3, 2015).

Eye Corrosion (Serious Eye Damage): It is defined as "the production of tissue damage in the eye, or serious physical decay of vision, following application of a test substance to the anterior surface of the eye, which is not fully reversible within 21 days of application" (UNECE, Part 3.3, 2015).

Description:

The Organisation for Economic Co-operation and Development Test Guideline 405 (OECD TG 405) and the Globally Harmonized System (GHS) for Classification and Labelling of Chemicals, Part 3.3 (UNECE, 2015) describe internationally accepted guidelines using animal methods for eye irritation/corrosion studies. OECD TG 405 (adopted in 1981 and updated in 1987, 2002,2012 and 2017) to reflect new efforts to refine and reduce animal use; and routinely use of topical anesthetics, systemic analgesics, and humane endpoints during *in vivo* ocular irritation safety testing. OECD guidelines, validation authority documents, and other regulatory acceptance for non-animal approaches for assessing serious eye damage/ eye irritation are described. For certain substances, such an analysis may indicate the need for *in vivo* studies of the ocular corrosion/irritation potential of the substance. In all such cases, before considering the use of the *in vivo* eye test, preferably a study of the *in vitro* and/or *in vivo* skin corrosion effects of the substance should be conducted first and evaluated in accordance with the sequential testing strategy in OECD Test Guideline 404.