
PHARMACOLOGY LABS [PHARMACOLOGY - IA]

INTRODUCTION

Pharmacology of drugs, their mechanisms of action; therapeutic uses, adverse effects and drug interaction are covered in theoretical classes. However, to appreciate such principles and the importance of testing drugs for their effects, practical classes aim to illustrate such effects on isolated and whole animal preparations. In this laboratory classes, students learn how to handle animals and learn the pharmacokinetic principles. In addition, students investigate some of the responses of guinea pig ileum preparation to several drugs, ranging from dose–response studies to demonstration of selective antagonism. Also they learn about effects of drugs on Rabbits eye to understand autonomic pharmacology. The sympathetic and parasympathetic control of pupil diameter and how pupil diameter changes in response to a change in ambient light intensity will be extensively covered. Neuro-muscular Blockers and drugs effects on skeletal muscle preparations are also covered. The effect of drugs on the slow muscle fibers of Toads abdominis muscle is also examined and to differentiate between the spastic paralysis and flaccid paralysis by studying the Neuro-muscular Blockers effect on chick.

EQUIPMENT AND INSTRUMENTS

- Water still W4000
- Electronic Balances
- Thermostatic bath
- Microscope
- Oven UNB
- UV Lamp Bench Type
- pH Meter
- Animal Temperature Recorder
- Rat Restrainer Adjustable Length
- Rabbit Restrainer Adjustable Length
- Precision Triple Beam Balance
- Centrifuges
- Refrigerator
- Chest Freeze
- Dissecting Set
- HARVARD Stimulator
- Harvard Apparatus Oscillographs
- Small Animal Ventilator
- Single Heated Tissue Bath

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- Hot Plates
 - Operator Table for Animal
 - Isometric & Isotonic Transducers
 - Endotracheal Tube Set
 - Vortex Mixer
 - Melting Point Apparatus
 - Homoeothermic Control Units for Medium & Small Animals
 - Mettler Toddler Microbalance
 - Phrenic Nerve Electrode
 - Rat, Mice & Rabbits Cages
 - Desiccator

EXPERIMENTS

- Experimental Animals and their Methods of Handling
- Routes of Drug Administration & Dose Calculation
- Drug – Drug Interactions and Drug Excretion
- Identification of Unknown Drug
- The Effect of Autonomic Drugs on Rabbit's Eye
- Guinea Pig Ileum Preparation
- Neuromuscular Junction Blockers & Frogs Rectus Abdominis Muscles
- Anterior Tibialis – Sciatic Nerve Preparation
- Finkleman's Preparation

PHARMACOLOGY LABS [PHARMACOLOGY - IB]

INTRODUCTION

This course will introduce the basic concepts of Cardiovascular Pharmacology to students & will investigate aspects of muscle function and drug effects in diverse isolated tissues and whole animal preparations including:

- Cardiac muscle function in the mammalian atria and heart,
- vascular tissue (Rat coronary artery & rabbit blood pressure) All experiments expose students to techniques including equipment set-up, force transducer calibration, tissue dissection and mounting, and dose-response assays and analysis

The following experiment uses a small mammal, rabbit & albino rats to investigate the actions of various pharmacological agents on the arterial blood pressure and also the effects of drugs on the isolated rabbit heart, using a Langendorff apparatus in which the heart is perfused via its coronary arteries with oxygenated physiological solution, which keeps the cardiac muscle viable in vitro for a few hours. The student will explore the effects of various neurotransmitters and drugs on the heart.

EQUIPMENT AND INSTRUMENTS

- Water still W4000
- Electronic Balances
- Thermostatic Bath
- Oven UNB
- pH Meter
- Animal Temperature Recorder
- Rat Restrainer Adjustable Length
- Rabbit Restrainer Adjustable Length
- UV – Visible Spectrophotometer
- Precision Triple Beam Balance
- Centrifuges
- Refrigerator
- Chest Freeze
- Dissecting Set
- HARVARD Stimulator
- Harvard Apparatus Oscillographs
- Small Animal Ventilator
- Thermo Circulator
- Operator Table for Animal

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- Single Heated Tissue Bath
 - Hot Plates
 - Isometric & Isotonic Transducers
 - Blood Pressure Transducer
 - Endotracheal Tube Set
 - Omron Blood Pressure Monitor
 - Vortex Mixer
 - Homeothermic Control Units for Medium & Small Animals
 - Mettler T104 Microbalance
 - PC Cardiogram with Computer
 - Hot Bead Sterilizer for Small Surgical Instruments
 - Rat, Mice & Rabbits Cages
 - Blood Pressure Monitor Mercury

EXPERIMENTS

- Cardiovascular physiology
- Electrophysiology of the heart and normal ECG
- Effects of drugs on the perfused isolated rabbits heart – Lagendorff's preparation
- Rat Blood Pressure Preparation
- Renal function

PHARMACOLOGY LABS [PHARMACOLOGY - IIA]

INTRODUCTION

This course will introduce the basic concepts of CNS Pharmacology, including experimental Parkinsonism, Analgesic effect of some drugs, local anesthetic agents and induction of physical dependence using morphine.

EQUIPMENT AND INSTRUMENTS

- Electronic Balances
- Thermostatic Bath
- pH Meter
- Animal Temperature Recorder
- Rat Restrainer Adjustable Length
- Rabbit Restrainer Adjustable Length
- Precision Triple Beam Balance
- Centrifuges
- Refrigerator
- Chest Freeze
- Silent Crusher (Homogenizer)
- Bone Cutter-Nickel plated Carbon Steel
- Dissecting Set
- VERSAMAX Analyzer
- Friedman Bone Rongeurs Curved
- Vortex Mixer
- Homoeothermic Control Units for Medium & Small Animals
- Mettler Toddler Microbalance
- Hot Plate Analgesia Meter Harvard
- Sterotaxic Frame
- Hot Bead Sterilizer for Small Surgical Instruments
- Animal Activity Monitor + Acer Monitor + Computer Set
- Rat, Mice & Rabbits Cages

EXPERIMENTS

- Experimental Parkinsonism
- Opioid Analgesia in Animals, Thermal & Mechanical Methods
- Non-steroidal Anti Inflammatory Analgesics, Chemical & Electrical Methods
- Induction of Physical Dependence with Morphine
- Local Anesthetic Agent