About Animal House

The Animal House and its facilities has been established out of the funds received from Sambalpur University and OHEPEE, Govt. of Odisha in the year of 2023 at the Department of Biotechnology & Bioinformatics. It was created as per the guidelines of Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA) and has been approved by the CPCSEA with regd. no: **230/GO/Re/S/23/CCSEA**. It is the backbone of research activities for drug discovery and drug development. The animal house facility has been utilized for conducting experimental works with small animas as per the guidelines under different projects sponsored by OHEPEE, ICMR, DBT, Ministry of AYUSH. The ethical committee has been constituted and approved by the CPCSEA for receiving of the experimental work and approval. Presently the facilities are utilized for following experiments in the animal for the efficacy evaluation, toxicity profiling & mechanistic study of various herbal antidiabetic, anti-cancer, anti-filarial, hepatoprotective, anti-arthritic, anti-neuropathy, anti-diarrheal, gastritis, anti-anemia activity. The animal house facility is having state of the art facilities with modern instruments.

Animal House Facility

Sambalpur University

Department of Biotechnology and Bioinformatics

Regd. no: *2230/GO/Re/S/23/CCSEA*

Activities In Animal House

- General over view of research animals of a variety of species, including their biology and behavior, fundamental laboratory animal husbandry practices, the layout and functional units of animal facilities, general routine sanitation and hygiene practices, cleaning, washing, and sterilization of animal cages, racks, and bedding, etc.
- Practical instruction in fundamental experimental techniques using laboratory animals, including animal handling and restraint, routes of administration, necropsy techniques, anesthesia and euthanasia in animals, and so on.
- An overview of behavioral techniques used for evaluation of stress, anxiety, learning and memory etc. including the causes, symptoms, diagnostics, and treatments of the most common animal diseases.
- Recording and maintaining reception, distribution, and shipment of animals, food and bedding, disposal records, etc. The fundamental necessities of animal nutrition, the manufacturing and formulation of animal feed (only in theory), the warehousing and distribution of animal feed, and other related topics are discussed.
- Introduction to animal care and ethics, national and international rules and guidelines, animal experimental protocol creation and design, Institutional Animal Ethics Committee (IAEC) and its members, etc.

TYPES OF FACILITIES

The **Department of Biotechnology & Bioinformatics'** Animal facility provides investigators with the infrastructure for experimentation on mice and rabbits. The Animal facility is equipped with modern equipment's. The procurement of animals from other sources is strictly controlled by animal facility management and users are required to adhere to the guidelines. Requests for animals must be made in the specified format well in advance. Investigators must obtain approval of the IAEC before initiating experiments. The Structure of our animal house facility includes Quarantine room, Animal store room, Different experimental rooms, Individual rooms for rat and mice, Animal behavior study room, Autoclave room, Wash area, Dissection room. The bio-waste disposal procedure is followed as per Control and Supervision of Experiments on Animals (CPCSEA) guidelines.

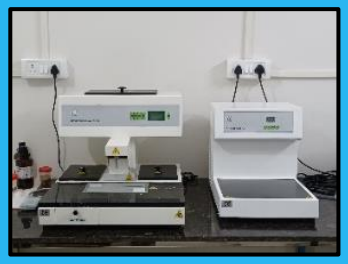
Auto Hematology Analyzer

Uses:

It rapidly analyzes whole blood specimens for the complete blood count (CBC). Results include red blood cell (RBC) count, white blood cell (WBC) count, platelet count, hemoglobin concentration, hematocrit, RBC indices, and a leukocyte differential.

Tissue Embedding & Cold Plate

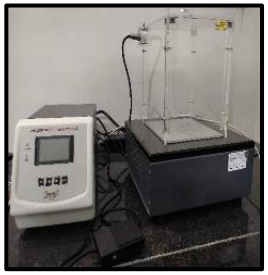
Uses:



The tissues or the specimens are enclosed in a mass of the embedding medium using a mold as the tissue blocks are very thin and they need a supporting medium This supporting medium is called the embedding medium. Cold Plate is used for re-cooling blocks prior to sectioning or as part of an embedding center to cool molds after paraffin dispensing.

Analgesia Meter-Hot and Cold Plate

Uses:



The Hot/Cold Plate Analgesia Meter is an innovative instrument opening new investigation fields for our analgesia research by allowing us to test animal's sensitivity to pain resulting from exposure to heat or cold. It is developed to perform rapid & precise screening of analgesic drug properties on mice & rat.

Digital Electroconvulsiometer

Uses:

It is used for applying maximal electro-shock through corneal electrodes provided. This Instrument is used to study the anti- convulsant activity of phenytoin against maximal electro-shock induced convulsions in rat or mice.

Semi-Automatic Multicut Microtome

Uses:

It is used to preserves the frozen tissue samples, slice tissue sections thin enough for microscopic examination, and provide a quick diagnosis for a variety of diseases and medical conditions, including neuromuscular diseases It can also be used to examine enzyme histochemistry.

Semi-Automatic Cryo Microtome System

Uses:

It is used in histology and pathology laboratories to slice thin and precise sections of tissue samples for microscopic examination. It offers controlled and consistent cutting, enhancing efficiency and accuracy in preparing tissue slides for various medical and research purposes.

Digital Cook's Pool Climbing Apparatus

Uses:

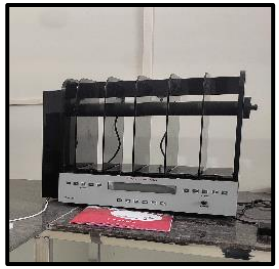
It is used to determine the antipsychotic activity and is based on principle of ability of psychotropic drugs to avoid conditioned response. This apparatus is used for inducing stable baseline behavior.

Digital Plethysmometer

Uses:

It measures the changes in small paw volume indicating inflammation. This Apparatus measures micro volume changes due to displacement of water with the insertion of Rat or Mouse paw.

Rotarod Apparatus



Uses:

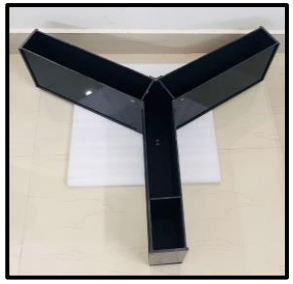
It is used for assessing motor coordination and balance in rodents. It provides a quick and simple estimation of neuromuscular coordination.

Anesthesia System

Uses:

It is used to prepare a gas mixture of precisely known, but variable composition. The gas mixture can then be delivered to a breathing system. The anesthesia gas machine is also called the anesthesia workstation, or anesthesia delivery system.

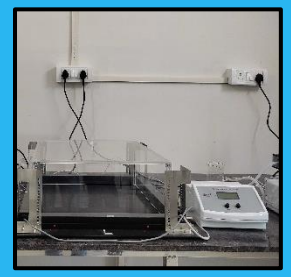
Y- Maze



Uses:

It is a used to study spontaneous alternation behavior in rodents. The maze's three arms form a Y shape, and the animal's natural tendency to explore new environments leads to sequential arm choices, providing insights into spatial working memory and learning capabilities.

Infrared Actimeter System



Uses:

The Infrared (IR) Actimeter allows the study of spontaneous locomotor activity, rearing's and optionally hole-board test parameters for exploration in rodents. A reliable system for easy and rapid drug screening and phenotype characterization in both day and night conditions.

Water Maze

Uses:

Often referred to as a Morris water maze, is a behavioral test used in neuroscience research to assess spatial learning and memory in animals, particularly rodents. The maze requires animals to find a hidden platform in a pool of water, evaluating their cognitive abilities and memory retention.

Elevated Plus Maze

Uses:

It is used in neuroscience to assess anxiety and exploratory behavior in rodents. It consists of open and enclosed arms, allowing researchers to study fear responses and decision-making under conflicting motivations.

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