KARPAGAM ACADEMY OF HIGHER EDUCATION

(Deemed to be University)
(Established Under Section 3 of UGC Act, 1956)
Pollachi Main Road, Eachanari Post, Coimbatore, Tamil Nadu – 641 021

ANIMAL HOUSE FACILITY

APPROVED FOR RESEARCH AND BREEDING FOR IN-HOUSE USE OF SMALL EXPERIMENTAL ANIMALS

By

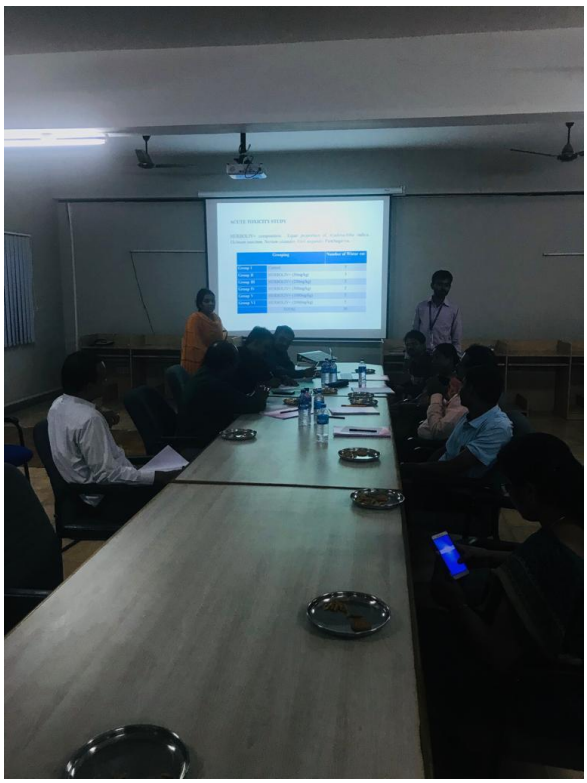
Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA)
Ministry of Environment, Forest & Climate Change
Government of India

WE DON'T SMOKE. WE DON'T DRIVE.
WE DON'T WEAR MAKE-UP OR PERFUME.
WE DON'T USE PAINT. WE DON'T DRINK ALCOHOL.
WE DON'T DROP BOMBS. WE DON'T TAKE DRUGS.
JUST BECAUSE HUMAN DO IT,
WHY SHOULD WE SUFFER THROUGH EXPERIMENTATION?

Approval and Status of Animal House Facility

Year of Establishment		2003
CPCSEA Approval Number		739/PO/ReBi/S/03/CPCSEA
Current status		Active (renewed for five years from 28th March, 2018 to 27th March, 2023) (Annexure 1).
Last IAEC meeting conducted		15th June, 2019
Animal strains available		Wistar albino rats Swiss albino mice New Zealand Rabbit
IAEC Members		
CPCSEA Nominees		
1.	CPCSEA Main Nominee	**Dr. GanesanAriharaSivakumar** Professor, Dept. of Pharmacology KMCH College of Pharmacy, Kovai Estate, Kalapatti Road, Coimbatore – 641048, Tamil Nadu
2.	CPCSEA Link Nominee	**Dr. C. Gunasekaran** Professor, Conservation Biology Lab, Department of Zoology, Bharathiar University, Coimbatore – 641 046, Tamil Nadu
3.	CPCSEA Scientist from outside of the Institute	**Dr. M. Ramanathan** Principal, PSG College of Pharmacy, Peelamedu, Coimbatore – 641 004, Tamil Nadu
4.	CPCSEA Socially Aware Nominee	**Dr. T. Sengottuvel** Associate Professor, Dept. of Pharmacology, KMCH College of Pharmacy, Kovai Estate, Kalapatti Road, Coimbatore – 641048, Tamil Nadu
IAEC Internal Members		
1.	Biological Scientist	**Dr. M. Palaniswamy** Dean, Faculty of Arts, Science and Humanities, Karpagam Academy of Higher Education, Coimbatore - 21
2.	Scientist 1	**Dr. K. Devaki** Associate Professor & Head, Department of Biochemistry Karpagam Academy of Higher Education, Coimbatore - 21
3.	Scientist 2	**Dr. S. Mohan** Principal, Karpagam College of Pharmacy, Coimbatore – 21
4.	Veterinarian	**Dr. M. Manu** Senior Veterinary Surgeon, Govt. Veterinary Hospital Perur, Coimbatore – 641 010
5.	Scientist In-charge of animal house	**Dr. L. Hariprasath** Assistant Professor, Department of Biochemistry Karpagam Academy of Higher Education, Coimbatore - 21

IAEC Meeting (15-June-2019)



Inspection of animal house facility during IAEC meeting

Synopsis of Experiments conducted at Animal House Facility

Study 1:

Title	An investigation of in vitro and in vivo anticancer activity of nano-formulation against skin cancer
Principal Investigator/Researchers	Dr. M. Palaniswamy& Ms. PatilSunitha Vishnu
Department	Microbiology
Animals sanctioned	Swiss albino mice, 30 numbers
IAEC approval number	KAHE / IAEC / 2018 / 21-04 / 001 (21st March, 2019)
Status of the project	Completed

Experimental:

Animals were acclimatized before the start of study. Hairs were removed from the back of mice. 7,12-dimethylbenz(a)anthracene (DMBA) (100 µg in 100 mL acetone) was used for development of carcinoma by applying it topically two times weekly for 2 weeks followed by 12-O-tetradecanoylphorbol 13-acetate (TPA) or Croton oil (16-18 weeks) for the development of skin carcinoma. The induced areas were examined visually for symptoms resembling skin cancer. After the induction, the animals were treated topically with the study gel once in a day with a dose of 0.005 mg/g for 10-12 weeks. After the treatment duration, animals were sacrificed by cervical dislocation and skin tissues were collected for histopathological study. The histopathological images showed significant reduction in the tumor of treatment group animals. The results were promising and the study gel might be an alternative medicine for skin cancers. However, further investigations such as in vivo experiments in higher animals and clinical trials are needed to confirm this claim.

Animal Grouping:

S. No.	Group of animals	Treatment	Animals sanctioned
1.	Group I	Control	6
2.	Group II	Cancer induced control	6
3.	Group III	Base	6
4.	Group IV	Cancer inducing agent and gel	6
5.	Group V	Gel formulation after cancer induction	6

Study 2:

Title	Anti-hypertensive activity of poly herbal extract in Wistar albino rats
Principal Investigator/Researchers	Dr. M. Sridhar Muthusami & Ms. K. Abhaya
Department	Biochemistry
Animals sanctioned	Wistar albino rats, 30 numbers
IAEC approval number	KAHE / IAEC / 2018 / 21-04 / 002 (21st March, 2019)
Status of the project	Completed

Experimental:

Poly herbal extract is a combination of *Sidaacuta, Hybanthusenneaspermus, and Cardiospermumhelicacabum* L. The aim of this study is to formulate a combination of extracts for antihypertensive property. Wistar rats (175-200g) are used for this study. Systolic pressure measured with a tail cuff and a pneumatic pulse transducer twice-weekly. Blood pressure measurements were begins 2 weeks before Doeoxycorticosteroneacetate (DOCA) salt treatment. Pretreatment blood pressure measurements were obtained, and the animals are divided into 5 groups each group containing 6 animals. Group I served as control. Group II to Group 5 are experimental groups. The experimental groups except group V received DOCA (20mg/kg s.c. in olive oil) twice weekly for 5 weeks and 1% NaCl in their drinking water. For each rat, at least five blood pressure readings are averaged to obtain the blood pressure on that day. After 5 weeks of treatment, the results obtained are analyzed statistically.

Animal Grouping:

S. No.	Group of animals	Treatment	Animals sanctioned
1.	Group I	Control	6
2.	Group II	Hypertension induced control	6
3.	Group III	Hypertension + Standard drug	6
4.	Group IV	Hypertension induced and treated by poly herbal extract (600mg/kg bw) (*Sidaacuta, Hybanthusenneaspermus, and Cardiospermumhelicacabum.L*)	6
5.	Group V	poly herbal extract (600mg/kg bw) alone (*Sidaacuta, Hybanthusenneaspermus, and Cardiospermumhelicacabum.L*)	6

Study 3:

Title	Analgesic activity of poly herbal extract in Wistar albino rats
Principal Investigator/Researchers	Dr. L. Hariprasath & Ms. D. Malarvizhi
Department	Biochemistry
Animals sanctioned	Wistar albino rats, 30 numbers
IAEC approval number	KAHE / IAEC / 2018 / 21-04 / 003 (21st March, 2019)
Status of the project	Completed

Experimental:

Poly herbal extract is a combination of *Sidaacuta, Hybanthusenneaspermus, and Cardiospermumhelicacabum.L*. The aim of this study is to formulate a combination of extracts for analgesic property. 50 µl of a 5% formalin solution was injected subcutaneously into the dorsal surface of the right or left hind paw of the rat using a 29 gauge needle. The 5% formalin solution was prepared by dilution with normal saline of the commercial 10% formalin solution. The total number of flinches of the hind paw and/or the hind quarters was recorded by visual observation for 5 min periods for total observation duration of 2 h following injection of formalin. In addition, licking / biting of the injected paw was recorded using a digital time-out stopwatch as total licking time (s) per 5 min observation period for a total duration of 2 h following injection of formalin. Control rats, injected subcutaneously in the dorsal surface of the right hind paw with 50 µl normal saline, did not show these typical nociceptive behaviors.

Animal Grouping:

S. No.	Group of animals	Treatment	Animals sanctioned
1.	Group I	Control	6
2.	Group II	Induced	6
3.	Group III	Induced + Standard	6
4.	Group IV	Induced + Poly herbal extract	6
5.	Group V	Poly herbal extract alone	6

Study 4:

Title	Effect of androgen deprivation on Siva gene expression
Principal Investigator/Researchers	Dr. M. Sridhar Muthusami & Ms. K. Abhaya
Department	Biochemistry
Animals sanctioned	Wistar albino rats, 12 numbers
IAEC approval number	KAHE / IAEC / 2018 / 21-04 / 005 (21st March, 2019)
Status of the project	Completed

Experimental:

The human heart is an organ that pumps blood throughout the body via the circulatory system supplying oxygen and nutrients to the tissues and removing carbon dioxide and other wastes. Testosterone is the primary male sex hormone and an anabolic steroid. In male humans, testosterone plays a key role in the development of male reproductive tissues such as testes and prostate, as well as promoting secondary sexual characteristics such as increased muscle and bone mass, and the growth of body hair.Testosterone deficiency increases substantially with age and is associated with the development of several disorders including Cardiovasculardisease.

Siva is an apoptosis regulatory protein in humans encoded and is a member of the tumor necrosis factor receptor (TFNR) superfamily. The present study aimed at evaluating the effect of androgen deprivation on siva gene expression in heart. The study comprised of 6 Wistar rats, out of which 3 rats were gonadectamized, and 3 were kept as control.The rats were left for 2 months and sacrificed to remove heart. Total RNA was isolated from heart cells and the concentration and purity of total RNA were determined by absorbance at 260/280 nm in a UV-spectrophotometer. Two µg of total RNA was used for reverse-transcriptase polymerase chain reaction (RT-PCR) analyses using primer for Siva gene. After agarose electrophoresis, cDNA products were visualized under UV light and documented. The mRNA expression of SIVA gene was found to be increased in cardiomyocte of androgen deprived rats and may be due on the increased stability of transcription factor involved in gene expression of SIVA. The role of SIVA protein on androgen deprived state is not well documented. However in general, it is presume to have a destructive role. We postulate this gene involve in process of calcification and further studies, will be planned to determine the role of SIVA gene on the proteins involved in calcification process.After two months androgen deprivation was confirmed using testosterone analysis. At the end of the study all the rates are euthanized for the collection of blood to carry out biochemical assays. After, the completion of experimental time point, heart and femur bone was excised for histopathological, biochemical and molecular studies.

Animal Grouping:

S. No.	Group of animals	Treatment	Animals sanctioned
1.	Group I	Control	6
2.	Group II	Gonadectimised	6

Study 5:

Title	*In vivo* anti-inflammatory activity of poly herbal plant extracts
Principal Investigator/Researchers	Dr. K. Poornima& Ms. P. Muneeswari
Department	Biochemistry
Animals sanctioned	Wistar albino rats, 30 numbers
IAEC approval number	KAHE / IAEC / 2018 / 21-04 / 007 (21st March, 2019)
Status of the project	Completed

Experimental:

Poly herbal extract is a combination of *Sidaacuta, Hybanthusenneaspermus, and Cardiospermumhelicacabum.L*. The aim of this study is to formulate a combination of extracts for anti-inflammatory property. Male or female Wistar albino rats with a body weight between 100 and 150 g were used. The animals were starved overnight. To ensure uniform hydration, the rats received 5 ml of water by stomach tube (controls) or the test drug dissolved or suspended in the same volume. Thirty minutes later, the rats were challenged by a subcutaneous injection of 0.05 ml of 1% solution of carrageenan into the plantar side of the left hind paw. The paw volume was measured plethysmographically immediately after injection, again 30 min, 1h 2h, 3h and eventually 6 after challenge. The increase of paw volume after 3 or 6 h is calculated as percentage compared with the volume measured immediately after injection of the irritant for each animal. Effectively treated animals show much less edema. The difference of average values between treated animals and control groups was calculated for each time interval and statistically evaluated.

Animal Grouping:

S. No.	**Group of animals**	**Treatment**	**Animals sanctioned**
1.	Group I	Control	6
2.	Group II	Carrageenan	6
3.	Group III	Carrageenan + Standard drug	6
4.	Group IV	Carrageenan induced treated by Poly herbal extract (600mg/kg bw) (*Sidaacuta, Hybanthusenneaspermus*and *Cardiospermum halicacabum.* L)	6
5.	Group V	Poly herbal extract alone (600mg/kg bw) (*Sidaacuta, Hybanthusenneaspermus*and *Cardiospermum halicacabum.* L)	6

Study 6:

Title	Antidiabetic activity of poly herbal extract in Wistar albino rats – Streptozotocin induced
Principal Investigator/Researchers	Dr. K. Devaki& Dr. S. Priyanga
Department	Biochemistry
Animals sanctioned	Wistar albino rats, 30 numbers
IAEC approval number	KAHE / IAEC / 2018 / 21-04 / 008 (21st March, 2019)
Status of the project	Completed

Experimental:

Poly herbal extract is a combination of *Sidaacuta, Hybanthusenneaspermus, and Cardiospermumhelicacabum.L*. The aim of this study is to formulate a combination of extracts for antidiabetic property. The animals are made diabetic by administration of streptozotocin 45mg/kg body weight as a single dose. Then they are grouped into 5 groups, six animals in each group. The animals are identified by picric acid marking. Two group of animal served as control received normal saline and plant extract respectively. One group of diabetic rats received the plant extract and another one standard drug along with diabetic control. All the animals are treated daily once by the plant extract through intra gastric tube for 45 days.At the end of the study all the rats are euthanized for collection of blood to carry out biochemical assays.After, animal abdomen was cut open, pancreas, liver and some other organs were excised for histopathological studies.

Animal Grouping:

S. No.	Group of animals	Treatment	Animals sanctioned
1.	Group I	Control	6
2.	Group II	Diabetes induced	6
3.	Group III	Diabetes + Standard drug	6
4.	Group IV	Diabetes induced treated by Poly herbal extract	6
5.	Group V	Poly herbal extract alone	6

Study 7:

Title	Hepatoprotective activity of poly herbal extract in Wistar albino rats induced with carbon teterchloride
Principal Investigator/Researchers	Dr. K. Devaki
Department	Biochemistry
Animals sanctioned	Wistar albino rats, 30 numbers
IAEC approval number	KAHE / IAEC / 2018 / 21-04 / 010 (21st March, 2019)
Status of the project	Completed

Experimental:

Poly herbal extract is a combination of *Sidaacuta, Hybanthusenneaspermus, and Cardiospermumhelicacabum* L. The aim of this study is to formulate a combination of extracts for hepatoprotective property. The Animals weighing 150g were divided into five groups containing six animals per group. Group I control animals. Group II, Group III, Group IV received 0.25 ml CCl_4 in liquid paraffin (1:1) per100 g b.wt. intraperitoneally. Group II acted as untreated control. Group III treated as poly herbal treated, Group IV treated with standard drug, Group V treated with poly herbal extract. All the animals are treated daily once by the plant extract through intra gastric tube for 30 days. At the end of the study all the rats are euthanized for collection of blood to carry out biochemical assays. After animal abdomen was cut open and liver was excised for histopathological studies.

Animal Grouping:

S. No.	**Group of animals**	**Treatment**	**Animals sanctioned**
1.	Group I	Control	6
2.	Group II	Induced with CCl_4	6
3.	Group III	CCl_4Induced + Standard drug	6
4.	Group IV	CCl_4 induced and treated by Poly herbal extract	6
5.	Group V	`Poly herbal extract alone	6

Study 8:

Title	Efficacy of Streptomyces gobitricini ABK07 in a rodent model
Principal Investigator/Researchers	Dr. R. Usha / Mr. Angima Bichang'a Kingsley
Department	Microbiology
Animals sanctioned	25
IAEC approval number	KAHE/IAEC/2018/21-04/011
Status of the project	Completed

Experimental:

25 Female CBA mice weighing about 160-180 g were procured from the animal house of Karpagam Academy of Higher Education, Coimbatore, India. The mice were housed in a cage under standard conditions of 12 hours light and 12 hours dark cycles, a temperature of 24± 2 0C and relative humidity of 55± 5%. The rodents were fed with rodent diet and water. All experimental animal procedures were performed in accordance with protocols approved by the CPCSEA, New Delhi at KAHE under proposal number KAHE/IAEC/2018/21-04/011.

In this study, 25 female CBA mice were grouped as follows: Group 1: UPEC induced, Group 2: UPEC induced+ PBS (mock treated), Group 3: UPEC induced+ Gentamicin, Group 4: 20 µl/kg-body weightof extract (low dose) and Group 5: 40 µl/kg-body weight extract (high dose).

First three groups of rats were infected as indicated above and after 24 hours, the rodents were treated with a single daily i.p. injection of the active compound for 28 days at the same time at which the infection was induced. During the treatment period, the animals were placed individually in metabolic cages to collect urine over a 24-h period for the measurement of specific enzyme activities as markers of toxicity. Last two groups have given with extracts without microbial infection.

After the study period, bladder and kidney were examined for the inflammation. Inflammation was observed in the first group, since there was no treatment with natural extract. There was inflammation in the mock treated group too. There was no inflammation in the infected mice treated with the standard. No inflammation was reported in both groups treated with the extract.Following the results of this study, the actinobacteria extract was found to be suitable for UPEC treatment in mice without causing any inflammation.

Animal Grouping:

S. No.	Group of animals	Treatment	Animals sanctioned
1.	Group I	UPEC induced	5
2.	Group II	UPEC induced+ PBS (mock treated)	5
3.	Group III	UPEC induced+ Gentamicin	5
4.	Group IV	20 µl/kg-body weight of extract	5
5.	Group V	40 µl/kg-body weight extract	5