Abstracts of Posters Presented
Poster No.: Pcol-01

NOOTROPIC ACTIVITY OF VITEX NEGUNDO IN RATS: INFLUENCE OF SEROTONERGIC SYSTEM

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The objective of the present work was to study effects of Vitex Negundo on learning and memory & its modification by serotonin agents. The alkaloid rich extract of Vitex Negundo (VN) was prepared by cold maceration process of plant leaves. V. negundo extract was examined for its nootropic activity through serotonergic system by employing Elevated Plus Maze (EPM) as an animal model. At the dose of 200 mg/kg V. negundo extract was evaluated for its activity. To verify the effectiveness of this extract through serotonergic system, VN extract is combined with various serotonin agents. The brain level of serotonin was also estimated to correlate the behavior with neurotransmitter level. VN extract increased the Inflexion Ratio (IR) significantly compare to control group rodents. p-CPA, a 5-HT depleter impairs the memory by reducing 5-HT levels in brain, which were not restored back by co administration of VN extract. Buspironone, 5-HT1A partial agonist produced memory deficits and these effects are not recovered by VN extract treatment. m-CPP, a 5-HT2 agonist also shows increase in IR which indicates no active participation of 5-HT2c receptors in cognitive enhancing effects of VN extract. 1-PBG, 5-HT2 agonist also impairs the memory in rodents significantly and in combination with VN extract it potentiates the memory enhancing activity. Ondansetron, 5-HT3 antagonist increases the IR alone and in combination with VN extract it gives additive effect. The present study suggests that alkaloids rich VN extract has significant nootropic activity may be due to modulation of serotonergic system through 5-HT3 receptors.

Poster No.: Pcol-02

CARDIOPROTECTIVE EFFECT OF VORINOSTAT AGAINST MYOCARDIAL ISCHEMIA REPERFUSION INJURY

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Objective: Histone deacetylase and high mobility group box 1 protein (HMGB1) plays an important role in myocardial ischemia reperfusion injury (MI/R) and its inhibitors protective against MI/R hence in present study the effect of vorinostat (VRS), an inhibitor of histone deacetylase investigated against MI/R by using lagendroff’s perfused heart model.

Methods: In vitro MI/R was performed by using lagendroff’s perfused heart model in rats. The heart was rapidly excised and mounted on lagendroff’s apparatus. Each protocol comprised ischemia for 15 min followed by reperfusion for 30 min.

Results: The infarct size were significantly (P < 0.05) reduced in VRS treated rats compared to MI/R rats. The effluent concentration of cardiac creatinine kinase, CK-MB and lactate dehydrogenase were significantly (P < 0.01, P < 0.05, P < 0.05 respectively) decreased in VRS treated rats compared to MI/R rats. Lipid peroxidation level in cardiac tissue was significantly (P < 0.05) decrease after myocardial I/R in VRS treated rats compared to MI/R rats. Antioxidant enzymes like glutathione, superoxide dismutase and catalase were significantly (P < 0.05) increased in VRS treated rats compared to MI/R rats.

Conclusions: The present study demonstrated administration of vorinostat (50mg/kg) effective in reducing the extent of myocardial damage and significantly counteracted the oxidative stress. Cardioprotective effect of vorinostat was also proved by strengthening of myocardial membrane through its membrane stabilizing effect during MI/R in rats.

Poster No.: Pcol-03

THE PATTERN OF MEDICATION UTILIZATION IN NEONATAL INTENSIVE CARE MANAGEMENT UNIT IN NAVSARI DISTRICT

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Objective: The pattern of medication utilization in neonatal intensive care management unit: A prospective observational study

Materials and Methods: The prospective observational study was carried out for a period of 4 months from Jan to April 2013. The parameters studied were age, sex, type of birth, gestational age, birth weight, reason for admission, duration of stay in NICU, drugs, dose, frequency, duration of administration of medication, route of administration and mortality.

Results: A total of 102 patients, comprising 61(59.80%) male and 41(40.19%) female from them 92(90.19%) were normal and 10(9.80%) were LSCS delivery. The average gestational age was 32.54 weeks (minimum=20, maximum = 38). The majority of patients 55(54%) were preterm infants; 44(43%) were term infants and 03(3%) were very preterm infants. All 5 died neonate were male
amongst 4 were premature. Average duration of stay was 4.225 days. Major reasons for hospital admission were birth asphyxia 34(33.33%) and low birthweight 40(39.21%). 53% drug usage was not accordance with WHO model list of essential medicine for children 2010.

Conclusion: Drug utilization was appropriate as average drug per prescription was low but we felt more attention is needed in drugs towards licensing to prevent the adverse reactions and further attention should be given towards therapy to reduce patient cost.

**Poster No.: Pcol-04**

**CARNOSINE PREVENTS DMBA PLUS TPA INDUCED SKIN CARCINOGENESIS AND CYCLOPHOSPHAMIDE INDUCED MUTAGENESIS IN CD1 MICE**

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Background/objective: Carnosine (CRN) reported to inhibit growth of malignant glioma cultured cells and HCT 116 colon cell line. Therefore in present study we investigated its effect against skin cancer.

Methods: For carcinogenesis studies, CD1 mice were randomly divided into four groups. NC - mice received acetone application only and served as negative controls; DC - mice received topical applications of 7, 12 - dimethylbenz (α) anthracene (DMBA), followed by 12 - 0 - tetradeoxyanophorob - 13 - acetate (TPA) in acetone twice a weekly; CRN - mice were treated with daily dosing of carnosine (50 mg/kg, s.c.) plus DMBA+TPA application; and FU - mice were treated with daily dosing of 5 FU (20 mg/kg, p.o) plus DMBA+TPA application. For antimutagenicity study, animal were randomly divided into three groups. NC - Negative control; CYP - mice injected with cyclophosphamide (50 mg/kg); and CYP + CRN - mice treated with carnosine followed by cyclophosphamide.

Results: CRN treated mice demonstrated significant decreased in tumor yield when compared to DC. CRN group of mice demonstrated well preserved antioxidant profile when compared to DC group. CRN treatment significantly augmented RBC and hemoglobin level indicated minimal myelosuppressive effect, whereas WBC count was significantly reduced in CRN group compared with DC group. CRN significantly reduced total % of aberrated cells, moreover significantly reduce micronucleus formation when compared to CYP group without altering PCE/NCE ratio.

Conclusion: As per our finding CRN inhibited skin carcinogenesis in mice and this activity might be attributed to its antimitogenic and antioxidant activity.

**Poster No.: Pcol-05**

**GEMFIBROZIL MODIFY INFARCT SIZE, OXIDATIVE STRESS AND MEMBRANE BOUND ENZYMES INDUCED BY CEREBRAL ISCHEMIA - REPERFUSION IN RATS**

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Background/objective: Gemfibrozil is lipid lowering drug and found as ligands for peroxisome proliferators-activated receptors. A clinical study has shown that gemfibrozil reduces stroke incidence. However, it remains unknown whether gemfibrozil effective against cerebral ischemia – reperfusion injury (I/R), therefore present study was designed to investigate effect of gemfibrozil on I/R.

Methods: I/R in rats were induced by bilateral carotid artery occlusion (30 min) and followed by reperfusion (2 h). At the end of experiment infarct size were measured by TTC staining, histopathological evaluation carried out by hematoxylin - eosin staining. Brain tissue was utilized for measurement of oxidative stress markers and membrane bound enzymes.

Results and Discussion: Gemfibrozil treated rats demonstrated significant reduction in infarct sizes (P < 0.05) when compared with I/R group of rats, suggested that gemfibrozil markedly attenuated I/R injury. Gemfibrozil treatment demonstrated a significant decreased in malondialdehyde (P < 0.01), and significant increased was observed in level of reduced glutathione (P < 0.01), superoxide dismutase (P < 0.05) and catalase (P < 0.01). Gemfibrozil treatment resulted significant increased in level of Na+ - K+ ATPase (P < 0.05) and Mg2+ - ATPase (P < 0.01) and significant reduction of Ca2+ - ATPase (P < 0.01) when compared with I/R group of rats. Conclusion: In conclusion, gemfibrozil attenuated the cerebral ischemia – reperfusion injury and prevention is being shown via membrane stabilization, reducing the oxidative stress, and preventing apoptotic cell death.

**Poster No.: Pcol-06**

**A NOVEL APPROACH IN TREATMENT OF CANCER WITH CANCER CELLS**

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Cancer cells and their associated tumors have long been considered to exhibit unregulated proliferation or growth. However, a substantial body of evidence indicates that...
tumor growth is subject to both positive and negative regulatory controls. Here, we describe a novel property of tumor growth regulation that is neither species nor tumor-type specific. This property, functionally a type of feedback control, is triggered by the encapsulation of neoplastic cells in a growth-restricting hydrogel composed of an agarose matrix with a second coating of agarose to form 6- to 8-mm diameter macrobeads. In a mouse cell model of renal adenocarcinoma (RENCA cells), this process resulted in selection for a stem cell-like subpopulation which together with at least one other cell subpopulation drove colony formation in the macrobeads. Cells in these colonies produced diffusible substances that markedly inhibited in vitro and in vivo proliferation of epithelial-derived tumor cells outside the macrobeads. RENCA macrobead cells that were exposed to RENCA macrobead-conditioned media exhibited cell-cycle accumulation in S phase due to activation of a G(2)/M checkpoint. At least 10 proteins with known tumor suppression functions were identified by analysis of RENCA macrobead-conditioned media, the properties of which offer opportunities to further dissect the molecular basis for tumor growth control. More generally, macrobead culture may permit the isolation of cancer stem cells and other cells of the stem cell niche, perhaps providing strategies to define more effective biologically based clinical approaches to treat neoplastic disease.

Poster No.: Pcol-07

EVALUATION OF A POLYHERBAL FORMULATION IN HYPERLIPIDAEMIC RATS

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Objective: To study the effect of a polyherbal formulation (PHF) on dexamethasone and high fat diet (HFD) induced hyperlipidaemic rats.

Materials and methods: A PHF for hyperlipidaemia was prepared from plant extracts of Momordica charantia, Enicostemma littorale, Nelumbo nucifera and Garcinia indica. Each 2150 mg of formulation consisted of aqueous extract of Nelumbo nucifera (1000 mg); ethanolic extract of Momordica charantia (500 mg); aqueous extract of Enicostemma littorale (250 mg); aqueous extract of Garcinia indica (400 mg). In both models, i.e., dexamethasone induced and HFD induced hyperlipidaemic model, male wistar rats were divided into five groups viz. normal control group, dexamethasone control group (10 mg/kg, s.c.), PHB 1 treatment (134.6 mg/kg, p.o.), PHB 2 treatment (537.5 mg/kg, p.o.) and Atorvastatin treatment (10 mg/kg, p.o.). The drug treatment was carried out for 8 days. The high fat diet was continued to all groups except normal control. At the end of experiment in each experimental model, serum was collected through retro-orbital plexus method and lipid profile was measured by commercially available kits. Histopathological evaluation of liver and adipose tissue were carried out.

Results and discussion: The treatment with PHF at dose of 134.62 mg/kg and 537.5 mg/kg orally in both models. i.e., dexamethasone and high fat diet induced hyperlipidaemic model, a statistically significant reduction (P < 0.05) in total serum cholesterol, serum triglyceride, LDL-C, and VLDL-C levels were observed, whereas significant increase (P < 0.05) in HDL-C levels were observed in comparison that their respective diseased control groups. Similar results were observed with the atorvastatin (10 mg/kg).

Conclusion: In conclusion, the present study showed that the polyherbal formulation improved the serum lipid profile in rats and thus possesses preventive and curative effect against hyperlipidaemia. Further, studies are required to have more insight to its possible mechanism of action.

Poster No.: Pcol-09

EVALUATION OF IMMUNOMODULATORY EFFECT OF BETA VULGARIS VAR. CONDITIVA (BEET ROOT)

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Objective: To determine the immunomodulatory effect of beet root juice (BRJ). The immunomodulatory parameters are neutrophil adhesion test, haemagglutinating antibody (HA) titre, carbon clearance test and cyclophosphamide induced neutropenia.

Experimental Work: For neutrophil adhesion test and haemagglutinating antibody (HA) titre test albino wistar rats were divided into three groups (n=6) and for carbon clearance test and cyclophosphamide induced neutropenia test swiss albino mice were divided into four groups (n=6) for each test, viz., Control (untreated), Test 1 (5 ml/kg, BRJ, once daily), Test 2 (10 ml/kg, BRJ, once daily) and Test 3 (10 ml/kg, BRJ, twice daily). Beet root juice was administered daily by oral gavage tube according to test parameter. Blood samples were collected by retro-orbital plexus method, serum was collected after centrifugation and used for further tests.

Result and Discussion: Increase percentage (%) neutrophil adhesion rate by neutrophil adhesion test, and percentage (%) reduction in neutrophil by cyclophosphamide induced neutropenia showed stastically significant results (P < 0.05) in test 3 group (10 ml/kg, twice daily). The phagocytic index by carbon clearance test showed statistically significant results at both dose levels (5
ml/kg and 10 ml/kg). Increase in no. of titre by haemagglutinating antibody (HA) titre test showed statistically significant results (P > 0.05) at both dose levels.

Conclusion: Beet root juice suggests immunomodulatory effect at 10 ml/kg (twice daily) dose level.

Poster No.: Pcol-10

MECHANISM UNDERLYING BRONCHODILATOR ACTIVITY OF CYNODON DACTYLON (Linn.)

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Aim and Objective: In the traditional medicine, Cynodon dactylon Linn. is used in asthma but scientific studies to provide evidence for medicinal uses are sparse. Thus this study was undertaken to provide evidence for medicinal uses in asthma as a bronchodilator, and to identify active principle(s).

Materials and Methods: The in vivo, acetylcholine (Ach)-induced bronchospasm was conducted in guinea pigs while isolated tracheal preparations of rat were suspended in organ baths to measure the concentration response curves by using multi channel data acquisition system.

Results: The chloroform extract of Cynodon dactylon (CECD) protected against Ach-induced bronchospasm in guinea pigs, similar to atropine. In the in vitro studies, CECD relaxed carbachol (CCh) and high K+ induced contractions in tracheal preparations of rat, similar to atropine and verapamil respectively, suggesting the presence of antimuscarinic and calcium channel blocking (CCB) activities, which were confirmed by shifting of CCh and Ca²⁺ concentration response curves (CRC), constructed in rat trachea, towards right. The phosphodiesterase enzyme (PDE) inhibitory activity was confirmed by direct evidence when presence of CECD caused potentiation of isoprenaline-induced inhibitory response, similar to papaverine. Densitometry analysis confirmed presence of scopoletin (Rf = 0.25) responsible for CCB and PDE inhibitor activity of CECD. Conclusions: These results suggest that scopoletin may be responsible for bronchodilator activities of CECD possibly through CCB and PDE inhibition activity.

Poster No.: Pcol-11

NEUROPROTECTIVE EFFECTS OF COENZYME Q10 IN SCOPOLAMINE-INDUCED COGNITIVE IMPAIRMENT AND OXIDATIVE STRESS

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Alzheimer’s disease is a progressive neurodegenerative disorder characterized by a gradual decline in memory associated with shrinkage of brain tissue, with localized loss of neurons mainly in the hippocampus and basal forebrain, with diminished level of central cholinergic neurotransmitter-acetylcholine and also reported to be associated with accumulation of ubiquitinated proteins in neuronal inclusions and also with signs of inflammation. In these disorders, the abnormal protein aggregates may themselves trigger the expression of inflammatory mediators, such as cyclooxygenase 2 (COX-2).

Experimental: In the present study, the effects of Coenzyme Q10 at oral dose levels of 25, 50 and 100 mg/kg on scopolamine (0.5 mg/kg, i.p.)-induced learning and memory impairments in mice were investigated. Morris water maze test and passive avoidance test were conducted to evaluate the learning and memory parameters. Various biochemical parameters such as TBARS assay (malondialdehyde content), reduced glutathione, nitric oxide and glutamate levels assay were also assessed on brain homogenates.

Results and Discussion: The present study demonstrates that Coenzyme Q10 at dose level of 50 and 100 mg/kg shows the anti-amnesic activity in mice as evident from significant increase in escape latency time in passive avoidance model and decrease in escape latency time in Morris water maze test. This supported by inhibition of lipid peroxidation (Malondialdehyde levels), glutamate and NO levels and augmentation of endogenous glutathione levels in brain. The memory enhancing (anti-amnesic) capacity of Coenzyme Q10 can be attributed to its antioxidant property that may prevent oxidative neuronal damage in brain.

Poster No.: Pcol-12

A PATH OF CLINICAL RESEARCH – NEW WAY OF HOPE IN MEDICINAL FIELD

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This study includes the path of a new way of hope in medicine field in the form of clinical research, that test new treatments and therapies in people, viz. new drugs, new approaches to therapy, new combinations of treatments, or new methods of therapy. Search for new treatments begins in the laboratory. If an approach seems promising, the next step may be testing a treatment in animals. Once a particular treatment modality proves effective in an animal model, it may then progress to hu-
man clinical trials. In clinical trials, both research concerns and patient well being are important. To produce sound results, research with people is carried out according to strict scientific and ethical principles, approved by Institutional Review Board (IRB) or Institutional Ethics Committee (IEC), which includes consumers, clergy, and health professionals, which reviews the protocol to ensure that the research will not expose patients to extreme or unethical risks. Each clinical trial has a protocol (action plan) that explains how the study will be carried out. The same protocol is used by each doctor that takes part in the study. Each study enrolls people who are alike in key ways. Clinical trials involving new drugs are commonly classified into four phases. If drug successfully passes through all phases, it will usually be approved by the national regulatory authority for use in the general population. Clinical Trials Registry India (CTR) is registering the clinical researches launched on or after 20th July 2007.

**Poster No.: Pcol-13**

**DIABETIC WOUND HEALING EFFECT OF CALOTROPIS GIGANTEA LATEX OINTMENT AGAINST EXPERIMENTAL MODEL IN RATS.**

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**Objective:** To study wound healing activity of latex ointment from Calotropis gigantea (CGLEO) on diabetic wounds in rats.

**Experimental:** Male wistar rats (200-250g) were divided in to four groups (n=6), viz., Normal wound control (NWC), Normal wound + CGLEO (NWT), Diabetic wound control (DWC) and Diabetic wound + CGLEO (DWT). Diabetes was induced in DWC and DWT groups by a single dose of streptozotocin (60 mg/kg, i.p.). After 7 days of streptozotocin treatment, excision wounds (1 cm dia.) were created under anaesthesia. Extract of Calotropis gigantea latex was prepared and tested for class of constituents. A 2% ointment of latex extract was formulated and was applied to wounds for a period of 14 days in drug treated groups. Controls received dummy ointment base. During treatment, the period of epithelialization and rate of wound contraction were measured. After complete wound healing or on 14th day of drug treatment, animals were sacrificed, full-thickness skin samples were taken from the wound sites for evaluation of histopathological parameters like volume density of collagen fibres and number of vessels per unit area.

**Results and Discussion:** Treatment with 2% CGLEO for 14 days showed significant wound healing effects. The rate of wound contraction was increased and time of epithelization was found to be decreased significantly in CGLEO treated rats. Similarly, in normal wounds, treatment with 2% CGLEO caused statistically significant increased wound contraction, decreased epithelialization time, increase in volume density of collagen fibres when compared with normal wound control group.

**Conclusions:** The wound healing effect of 2% CGLEO can be attributed to increase in collagen synthesis as observed in both normal and diabetes wound treatment groups.

**Poster No.: Pcol-14**

**EVALUATION OF POLYHERBAL FORMULATIONS FOR DIGESTIVE AND ANTI-ULCER ACTIVITY**

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**Objective:** To evaluate the anti-ulcer activity of two Polyherbal formulations (PHF): PEP-UP tablet and PEP-UP syrup, against aspirin-induced gastric ulcer model and cysteamine-induced duodenal ulcer model in rats. Also to investigate the digestive property of both Polyherbal formulations.

**Materials and methods:** In aspirin-induced gastric ulcer model and cysteamine-induced duodenal ulcer model, the PEP-UP tablet (200 mg/kg, p.o.) and PEP-UP syrup (3 ml/kg, p.o.) treatment was carried out for 7 days prior to induction of ulcers. Ulcer index, gastric wall mucus content, antioxidant parameters such as lipid peroxidation, catalase, reduced glutathione and superoxide dismutase were determined in aspirin-induced gastric ulcer model. Ulcer incidence, ulcer index was determined in cysteamine-induced duodenal ulcer model and the duodenal tissue was subjected to histopathological studies for mucosal erosions. Digestive property of both PHF was determined for amylolytic, lipolytic and proteolytic activities.

**Results and discussion:** In aspirin induced gastric ulcer model, pretreatment with both PHF showed statistically significant reduction in ulcer index (P < 0.01) and increased gastric wall mucus content (P < 0.01). Similarly a significant antioxidant effect viz., decrease in malondialdehyde (P < 0.01), and significant increase reduced glutathione (P < 0.01), superoxide dismutase (P < 0.01) and catalase (P < 0.01) were also observed. In cysteamine-induced duodenal ulcer model pretreatment with both PHF showed marked reduction in ulcer index (P < 0.01). Histopathology of PEP-UP tablet and PEP-UP syrup pretreatment group did not show any vesicle or exfoliation of epithelium of villi. Both PHF demonstrated digestive property when compared to standard enzymes.
Conclusions: The present study showed that PEP-UP tablet and PEP-UP syrup pretreatment provide protection against gastric and duodenal ulcers and the activity seems to be due to enhancement of defensive mucosal factors. In addition both the formulations possess digestive properties.

Poster No.: Pcol-15

STUDY OF ANXIOLYTIC ACTIVITY OF Ficus racemosa Linn leaf extract

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Anxiety and stress are part of most people’s life today. Stressful conditions can precipitate anxiety disorders. The Ayurvedic texts recommend the use of Ficus racemosa Linn. leaves as anti-anxiety but there is a lack of scientific evidence for the anxiolytic activity, so the present study was carried out to evaluate the anxiolytic activity of methanolic extract of Ficus racemosa Linn. leaves in mice. In this study, Anxiolytic activities of methanolic extract of Ficus racemosa was assessed using Y-maze model, hole board model, elevated plus maze model (EPM), light dark model (LDM) and actophotometer. GABA and Glutamate neurotransmitter were measured in brain using UV spectrophotometric method. Results showed that the methanolic extract of Ficus racemosa Linn. leaves at the dose of 400mg/kg, p.o., significantly decreased number of visits in Y-maze, markedly increased the number of head dipping in hole board, significantly increased number of entries and time spent in open arm in EPM, significantly increased number of entries and time spent in light compartment in LDM, significantly decreased locomoter activity in actophotometer. Significant increase in GABA level and decrease in Glutamate level in treated group was observed as compared to control group. Findings in this study justify the use of the methanolic extract of Ficus racemosa Linn. leaves in the treatment of anxiety.

Poster No.: Pcol-18

CELL BASED ASSAYS- PROMISING ALTERNATIVES TO TRADITIONAL PRECLINICAL STUDIES IN DRUG DISCOVERY

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A cell based assay is an experimental test performed using live cell cultures or mixtures of cellular components (lysate). There are mainly three broad categories: (i) Second messenger assays that monitor signal transduction following activation of cell surface receptors (ii) Receptor gene assays that monitor cellular response at the transcription /translational level and (iii) Cell proliferation assays to monitor the overall growth/no growth response of cells to external stimuli. Cell based assays are more relevant alternatives to biochemical assays. They provide sensitivity, robustness, ease of use and flexibility. High throughput screening assays involving cells or subcellular fractions such as membranes is often used for screening to identify candidate drug leads. Cell-based assay applications are being adopted with increasing frequency by drug discovery programs because cell systems are often inherently predictive of in vivo responses. For example, simple cell-based systems can be used to address potential compound toxicity, metabolic degradation or impaired permeability. By virtue of their potential benefits they are now attracting intense interest in the search for new drugs and in the toxicity testing of new and old chemicals used throughout the modern world. Using in vitro cell based assays, compounds can be rapidly and cost effectively screened for activity prior to more expensive and time consuming in vivo analysis.

Poster No.: Pcol-19

LINAGLIPTIN (DPP4- INHIBITOR): A NEW APPROACH FOR TREATING THE PATIENTS WITH INADEQUATELY CONTROLLED TYPE
2 DIABETES MELLITUS

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Patients with type 2 diabetes mellitus (T2DM) receiving monotherapy are unable to meet recommended glycemic targets over the long term and require additional pharmacologic agents to maintain glycemic control. Dipeptidyl peptidase - 4 (DPP - 4) inhibitors have emerged as a viable option for use in first-line and combination therapies for the management of T2DM. Dipeptidyl peptidase (DPP – 4) inhibitor Linagliptin can be used as adjunctive therapy with either sulfonylurea or other oral hypoglycemic agents in patients with T2DM inadequately controlled with monotherapy. Recent studies show that Linagliptin is significant and clinically meaningful reductions in HbA1c compared with placebo. Tolerability of Linagliptin is good, with a low risk for hypoglycemia and no significant weight gain.

Poster No.: Pcol-20

CURRENT SCENARIO OF CLINICAL RESEARCH IN INDIA

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A clinical trial is a carefully and ethically designed human experiment with the aim of answering some precisely framed questions about vaccines or new therapies or new ways of using known treatments. Carefully conducted clinical trials are the fastest and safest way to find treatments that work. Clinical trials in India are governed by DCGI, who has proposed some short, mid, long term goals for promotion of clinical trials. Clinical trials are registered and monitored by Clinical Trials Registry of India (CTRI) while declaring certain registration data set. Clinical research in India is carried out with respect of ethical concerns and is followed by ICMR’S and to the guidelines in the declaration of Helsinki. A vast, unwieldy population, a plethora of diseases, reduced government policy for health sector, and rampant poverty was the picture India presented to the outside world till a while ago. Controversies like placebo effect etc. are adding points in barrier of clinical trials. Almost all the top names in the pharmaceutical world have zeroed-in on India, setting up clinical trial facilities in major cities, especially Hyderabad and Ahmedabad. In present scenario it has become common for the pharmaceutical companies to conduct illegal clinical trials on the patients in India without their consent and knowledge because of the socio-economic conditions in India in the present article the researcher analyzes about the need for conducting the clinical trial, process for conducting the clinical trials and regulations in our country for conducting the clinical trials.

Poster No.: Pcol-21

PHARMA COVIGILANCE- AN ULTIMATE CENSOR BODY AGAINST DRUG FRAUDULENT

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Pharmacovigilance (abbreviated PV or PhV), also known as Drug Safety, is the pharmacological science relating to the collection, detection, assessment, monitoring and prevention of adverse effects with pharmaceutical products. Now a day, more and more new drugs are being introduced in the country which includes new chemical entities (NCE), high tech pharma products, vaccines as well as new dosage forms, new routes of drug administrations and new therapeutic claims of existing drugs. Such rapid growth of NCE and High tech pharma products in the market throw up the challenges of monitoring Adverse Drug Reactions (ADRs) over large population base. Thus, there is an immense need to understand the importance of pharmacovigilance in today’s zero-tolerance drug safety environment. This will enable integration of good pharmacovigilance practice in the process and procedures to help ensure regulatory compliance and enhance clinical trials safety and post marketing surveillance. Keeping in mind India’s increasing participation in multinational trials, there is requirement to reform and provide recommendations for building a robust safety reporting system. There is a need to improve pharmacovigilance (PV) systems to more effectively monitor and take action on safety issues associated with medicines to enhance their contribution to public health.

Poster No.: Pcol-22

TARGETED ANIMAL MODELS- A PREMISE FOR PRECLINICAL TESTING OF NOVEL PHARMACOLOGICAL COMPOUNDS

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During the past few decades the purpose of drug discovery and development has changed immensely due to the most important feature required in preclinical testing, “predictive utility”. Leading drug candidates proceed through a series of clinical phases designed to assess
safety, dosing, and efficacy. This process is lengthy and expensive, with the cost for the entire clinical evaluation approaching hundreds of millions of dollars per drug. Traditional biochemical assays and cell based proliferation/cytotoxic screens are used to select lead compounds for clinical assessment. Appropriate methods for assessing the effectiveness of a particular model in selecting an efficacious drug or the extent to which drugs succeed in clinical trials following successful preclinical testing is still a topic of debate. Neither cell based assays nor other in vitro assays are particularly successful in predicting responses in humans. For e.g., a broad analysis of in vitro models and tumor xenografts done at the National Cancer Institute found poor correlations with activity in phase II clinical trials and generally concluded that only compounds that are successful in a large number of different models are likely to be effective clinically. The present review aims to highlight the need for selecting appropriate targeted animal models for increasing the successful assessment of novel drug leads.

**Poster No.: Pcol-23**

**AMELIORATIVE EFFECT OF Hibiscus Rosa Sinensis Linn on Ethanol Induced Oxidative Stress and Behavioural Changes in Rats**

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Recent evidences from literature strongly suggest that behavioural changes due to agents such as ethanol are associated with oxidative stress. The present study investigated the effects of Hibiscus rosa sinensis flower extract against changes in behaviour due to ethanol and the oxidative stress produced in the brain. Behavioural changes were induced by daily administration of 20% w/v ethanol (5 ml/kg) orally for 28 days. The alterations in behaviour such as locomotor activity, muscle coordination, learning and memory and cognitive function were observed to decline in ethanol treated rats. The activities of antioxidant enzymes superoxide dismutase (SOD), catalase (CAT), and reduced glutathione (GSH) were decreased while increase in the level of Lipid peroxidation (LPO) were observed in the brain tissue of disease control (ethanol treated) rats as compared to normal control rats. Treatment with Hibiscus rosa sinensis (250 mg/kg/day) orally, for a period of 28 days showed significant ameliorative effects on behaviour and all the biochemical parameters studied. Biochemical findings were supported by histological studies. The results from the present study support the protective role of H. rosa sinensis flower extract in ethanol induced changes in behaviour and oxidative stress in rat brain.

**Poster No.: Pcol-24**

**PEDIATRIC OBSTRUCTIVE SLEEP APNOEA SYNDROME – A RESEARCH APPROACH**

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Many complaints and syndromes are associated with pediatric OSAS (Obstructive Sleep Apnoea Syndrome). There is an immediate increase in upper airway resistance with sleep onset, with an initial “overshoot” in this resistance that decreases very quickly. Still, this resistance during established sleep is mildly higher than during wakefulness. There is also a slight decrease in tidal volume with sleep. This decrease will be more pronounced with the occurrence of rapid eye movement (REM) sleep. These mild decreases will be compensated by a slight increase in breathing frequency to keep minute ventilation to normal. Fat distribution varies according to genetic, sex, and hormonal patterns and the inherent relationship among these factors. It is common for fat to deposit in the abdominal region. Such abdominal obesity will lead to chest-bellows impairment, as seen in restrictive thoracic disorders. Although it may not lead to upper airway obstruction, abdominal obesity may worsen the poor gas exchange that may already exist because of OSAS. Sleep will always worsen the gas exchange in these subjects when they are in the supine position and when they achieve REM sleep. Also, REM sleep is associated with further flattening of the diaphragm’s position. These physiological changes worsen gas exchange in subjects with abdominal obesity and may even lead to REM sleep-related hypoventilation with some degree of carbon dioxide (CO₂) retention. Upper airway impairment, per se, is not directly related to this CO₂ retention. It has, however, been hypothesized that abnormal gas exchange during sleep may impair the coordination of time-related contractions of both upper airway dilator muscles and inspiratory muscles.

**Poster No.: Pcol-25**

**GLUCOKINASE ACTIVATORS: NEW DRUG TARGET FOR THE TREATMENT OF TYPE II DIABETES MELLITUS**

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Type 2 diabetes mellitus is a chronic metabolic disorder associated with long term complications. There is a need for novel therapies to help diabetic patients achieve and maintain glycemic control in order to avoid the long-term microvascular and macrovascular complications. Glucokinase is the glucose-phosphorylating enzyme. 99% of
glucokinase in the body is located in the liver, where it determines the rate of hepatic glucose phosphorylation. It serves as a glucose sensor in pancreatic β-cells mediating glucose-stimulated insulin biosynthesis and release and it governs the capacity of the liver to convert glucose to glycogen. Mutations in glucokinase are a cause of maturity-onset diabetes of the young (MODY) and glucokinase receptor, the regulator of glucokinase in the liver, is a diabetes susceptibility locus. Small molecule allosteric activators of the glucokinase enzyme, an important regulator of glucose homeostasis, have emerged as a potential new class of therapeutics. Glucokinase activators (GKAs) stimulate insulin release and glucose metabolism in the liver thereby lowering blood sugar. GKAs increase the enzyme’s affinity for glucose and also its maximal catalytic rate. Consequently, they stimulate insulin biosynthesis and secretion, enhance hepatic glucose uptake, and augment glucose metabolism and related processes in other glucokinase-expressing cells.

**Poster No.: Pcol-26**

**BIOSENSOR FOR DETECTION OF CANCER BIOMARKERS**

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Research activity and applications of biosensors for measurement of analytes of clinical interest over the last eight years are reviewed. Nanotechnology has been applied to improve the performance of biosensors using electrochemical, mechanical, optical and physical modes of transduction, and to allow arrays of biosensors to be constructed for parallel construction. Biosensors have been proposed for the detection of cancer biomarkers, cardiac biomarkers and biomarkers of autoimmune disease, infectious disease and DNA analysis. Novel applications of biosensors include measurement in alternate sample types such as saliva. Biosensors based on immobilized cells have found new applications for example the detection of cancer, and to monitor the response of cancer cells to chemotherapeutic agents. The number of research reports describing the new biosensors for the analytes of clinical interest continues to increase and however movement of biosensors from research laboratory to clinical laboratory has been slow. The greatest impact of biosensors will be felt at point of care testing locations without laboratory support. Integration of biosensors into reliable, easy-to-use, rugged instrumentation will be required to assure success of biosensor based systems at the point-of-care.

**Poster No.: Pcol-27**

**NANOMEDICINE: TODAY AND TOMORROW**

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Nanotherapeutics is the use of nanomedicine in therapy. Nanotechnology is not new technology. E.g., protein, vaccines, some peptides and viruses. Also molecular medicine and biotechnology may be considered nanotechnology. Nanotechnology will have a profound impact on the future of medical practice. Nanomedicine is a combination of nanotechnology and medicine and it provide new direction in medical diagnosis, monitoring and treatment at the level of single molecules or molecular assemblies at the “nano” scale of about 100 nm or less. Nanomedicine defined as “the monitoring, repair, construction, and control of human biological systems at the molecular level, using engineered nanodevices and nanostructures”. Nanomedicine is the application of nanoscale technologies to the practice of medicine. The role of nanomedicine in neurology is to investigate molecular, cellular and physiologic process, to promote functional regeneration of the nervous system, to facilitate the delivery of drugs across the blood brain barriers and in neuroprotective strategies. To increase the efficacy of anticancer drug and to reduce the toxic effect, a polymeric micelles and liposome based delivery system conjugated to tumor specific ligands have been studied. Alzheimer’s disease (AD) is other target for diagnosis. Nanotechnology represents a cluster of technologies with different characteristic and applications. Nanomedicine related applications are under development and this is a long process of converting nanomedicine in to commercially viable products. The ultimate goal of nanotherapeutics is comprehensive monitoring repair and improvement of all human biologic system.

**Poster No.: Pcol-28**

**HYPERTENSION & NATURAL REMEDIES**

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Hypertension (HTN) is the medical term for high blood pressure. It is dangerous because it makes the heart work too hard and contributes to atherosclerosis (hardening of arteries), besides increasing the risk of heart disease and stroke. HTN can also lead to other conditions such as congestive heart failure, kidney disease, and blindness. Conventional antihypertensives are usually associated with many side effects. About 75 to 80% of the world population use herbal medicines, mainly in developing countries, for primary health care because of their better acceptability with human body and lesser side effects. Herbs having hypotensive/ antihypertensive
potential are: *Agathosma betulina* (Family: Rutaceae), *Allium sativum* (Family: Alliaceae or Liliace), *Annona muricata* (Family: Annonaceae), *Apium graveolens* (Family: Apiaceae), *Aristolochia manshuriensis* (Family: Aristolochiaceae), *Crinum glaucum* (Family: Amaryllidaceae), *Theobroma cacao* (Family: Malvaceae), etc. Naturally occurring medicinal plants that have so far been scientifically studied and reported to have hypotensive or antihypertensive effects.

**Poster No.: Pcol-29**

**MALPRACTICES IN CLINICAL DRUG DISCOVERY – ROLE OF A PHARMACIST**

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India is a developing country that has achieved great heights in the field of medicine and allied technology. Despite all the modernization that our country has undergone in the past few decades, the rampant poverty in the society along with the combination of low income groups & illiteracy are factors that boost malpractices in the field of clinical drug discovery. As a result, many multinational pharmaceuticals have used this situation to their advantage. Establishing clinical research organizations (C.R.O.) as a subsidiary of the parent multinational pharmaceutical or outsourcing and carrying out clinical trials that are against the code of pharmaceutical ethics has gained momentum in the country. As a result, India has gained a reputation of being a global clinical research hub where anything and everything can be done. A common malpractice is the direct approach by pharmaceuticals to doctors to perform clinical trials on illiterate patients without following the code of ethics that has been set up by the government of India. Along with this factor the fact that money can buy you anything in this corrupt democracy has helped grow such malpractices in the country. So, as a pharmacist it is not only our role but our duty to spread awareness among the large number of illiterate and poor people about the malpractices in clinical drug discovery that are being carried out in our country.

**Poster No.: Pcol-30**

**ROLE OF PRECLINICAL STUDIES IN THE EVALUATION OF NANOPARTICLES AS FORMS OF DRUG DELIVERY**

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Nanoparticles are a broad class of materials intended for a broad spectrum of clinical applications (e.g., as medical devices, components of vaccine formulations, or drug carriers for therapeutic intervention of malignant, inflammatory, viral, neurodegenerative and other types of disorders).

Nano-enabled drug delivery systems are gaining application in the pharmaceutical industry, since nanoparticle-based drugs may have improved solubility, pharmacokinetics, and biodistribution compared to small molecule drugs.

Once administered into the biological system, nanoparticles enter the bloodstream and immediately encounter a complex environment of plasma proteins and immune cells. In the blood stream, they are taken up by monocytes, platelets, leukocytes, and dendritic cells (DC) and in tissues by resident phagocytes (e.g., Kupffer cells in liver, DC in lymph nodes, macrophages and B cells in spleen). Three main categories considered relevant to nanoparticle biodistribution to the immune cells and organs are hemolysis, thrombogenicity and complement activation and hence due importance to the preclinical testing of nanoparticle interaction with the biological system is required. Nanotechnology may help overcome persistent limitations of current treatments and thus contribute to the creation of more effective, safer and more affordable therapies, but a thorough preclinical testing of these drug forms remains inevitable to establish the dose-efficacy relationships and to optimize biophysical and biochemical parameters in order to make better drug delivery vehicles.