



Research Journal of Pharmacology and Pharmacodynamics (RJPPD)

ISSN 0975-4407

Volume 02, Issue 01, January-February, 2010

CONTENT

REVIEW ARTICLE

Quality Assurance in Clinical Trial

Patil SM, Sapkale GN, Kumbhar PB and Maske AP.....1

ABSTRACT:

Clinical research is a systemic study of the drug biologic or device on human subject. Any investigation in human s meant to determine the clinical, pharmacological pharmacokinetic, pharmacodynamic, and or risk/benefits properties of a drug device or biologic. There are four phases in clinical trials. Need of quality assurance in clinical trial is for building quality in upfront assuring quality through the process. As in clinical trial we are dealing with a human life and every thing is for patient safety. When drug development reaches the stage where the drug product are produced for clinical trials in human, then compliance with the cGMP regulation is required. The drug product must be produced in a qualified facility, using laboratory and other equipments that have been validated. Operating under a State of Control produces drug products for which there is adequate level of assurance Quality, Strength, Identity and Purity The manufacturer is responsible for the quality of the Pharmaceutical product at batch release by applying GMP During manufacturing, packaging, QC testing. The product should be stable throughout the shelf-life Quality assurance for the product should be Monitoring environmental conditions under which products are manufactured/stored, air and water systems to prevent contamination, Monitoring of personnel QA at Clinical Site to Supervise, Maintain Records, Adhere to Protocol, Learn investigator procedures, Report Adverse effect, Retain Records and Train Staff.

KEY WORDS: Clinical research, Quality assurance, pharmacodynamic, cGMP

Biomarker: Indicator for Disease

Rupali Kirtawade, Pallavi Salve, Chhotaram Seervi, Anita Kulkarni and Pandurang Dhabale.....5

ABSTRACT:

Biomarkers are referred to every means of tools for quantifiable measurements of biological homeostasis, which distinguish what is abnormal from normal. In other words any accessible, quantifiable signal that informs about the state of health for biological system. This is a broad definition that encompasses a range of measurements - physical, biochemical and even questionnaires. Also it gives measure changes occur in blood, serum, plasma, enzyme, body fluid and any normal constituent in body, which indicates the disease condition.

Biomarkers also play a very important role in identification of cerebrovascular diseases like Alzheimer's, frontotemporal dementia (FTD), Pulmonary Hypertension, lung cancer, Thyroid cancer etc. Whatever the measurement, a good biomarker should possess specific characteristics and be subject to robust statistical analysis. The focus of this review will inform us the potential value of Biomarker in all above said. A biochemical test that indicates the presence of subclinical disease would allow early intervention and possibly a better chance of altering the course of the disease. Although there have been considerable advances, many areas of drug development still require kinetic biomarkers. In principle,

biomarker can be developed for any system in which the rate of synthesis or degradation of a protein, lipid, carbohydrate, ribonucleotide or cell is desired. We emphasized on many target pathways of interest to pharmaceutical research and noted the potential for applying stable biomarkers.

Recent Advancement towards Treatment of Diabetes

Ishan panchal, B Panigrahi and CN Patel.....12

ABSTRACT

Diabetes is a chronic disease that occurs when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Diabetes can damage the heart, blood vessels, eyes, kidneys, and nerves. In 2030, the figure of diabetic patients is expected to rise to 366 million. Diabetes is the fourth leading cause of global death by disease. Each year diabetes accounts for 3.8 million deaths. This article deals with recent advancement towards treatment of diabetes. First it reviews emerging targets for diabetes like PTP-1B inhibitors, GSK-3 inhibitors and DPP-4 inhibitors. Second it describes recent nanotechnology research in the detection of insulin and blood sugar by implantable sensor and microphysiometer. In addition latest stem cell research occurs in diabetes treatment. At last this article give idea about working of insulin pump, glossary of pump and how pump can reduce the risk of complication of diabetes.

KEY WORDS: diabetes, PTP-1B inhibitors, GSK-3 inhibitors, DPP-4 inhibitors, nanotechnology, insulin pump, stem cell

Tuberculosis: Pathophysiology, Clinical Features, Diagnosis and Antitubercular Activity of an Actinomycin Produced by a New Species of Streptomyces

Ravi G Patel, Chirag K Patel, B Panigrahi and CN Patel.....22

ABSTRACT

Tuberculosis is an infection caused by the rod-shaped, non-spore-forming, aerobic bacterium *Mycobacterium tuberculosis*. *Mycobacteria* typically measure 0.5 μm by 3 μm , are classified as acid-fast bacilli, and have a unique cell wall structure crucial to their survival. The welldeveloped cell wall contains a considerable amount of a fatty acid, mycolic acid, covalently attached to the underlying peptidoglycan-bound polysaccharide arabinogalactan, providing an extraordinary lipid barrier. *Mycobacterium tuberculosis* is spread by small airborne droplets, called droplet nuclei, generated by the coughing, sneezing, talking, or singing of a person with pulmonary or laryngeal tuberculosis. These minuscule droplets can remain airborne for minutes to hours after expectoration. During the course of a systematic search for new antibiotics, an actinomycin complex was isolated from *Streptomyces regensis* sp. nov. (Gupta et al., 1963). This actinomycin complex differs from other actinomycins described in literature in its amino acid composition and is very highly active against *Staphylococcus aureus* and *Mycobacterium tuberculosis*. The strains of *Staph. aureus* highly resistant to penicillin, streptomycin, chloramphenicol, tetracyclin and erythromycin are equally susceptible to its action. This report deals with the antitubercular activity of this actinomycin complex. Antitubercular activity was tested by serial dilution method in Youman's medium containing Tween 80 and bovine albumin Fraction V. The tubes containing the desired concentration of the drug in the medium were inoculated with 0.03 ml. of 14 days old culture of *Mycobacterium tuberculosis* H37 RV, *M. tuberculosis* Ravenel and *M. avium* B 19.2. The results were read after 14 days of incubation at 37°C. In the case of *M. tuberculosis* ATCC 607, the reading were taken after 48 hours.

ICH Guidelines with Special Emphasis on Good Clinical Practice Guidelines (GCP)

Raghava Ramesh Narayana, KP Shivalinge Gowda, Syed Mansoor Ahamed and S Badami.....27

ABSTRACT:

Good Clinical Practice (GCP) is an international ethical and scientific quality standard for the design, conduct, performance, monitoring, auditing, recording, analyses and reporting of clinical trials. It also serves to protect the rights, integrity and confidentiality of trial subjects. It is very important to understand the background of the formation of the ICH-GCP guidelines as this, in itself, explains the

reasons and the need for doing so. In this paper, we address the historical background and the events that led up to the formation of these guidelines. Today, the ICH-GCP guidelines are used in clinical trials throughout the globe with the main aim of protecting and preserving human rights.

KEY WORDS: ICH, Good clinical practices guidelines, Quality, Safety, Efficacy and Multidisciplinary

Biochemical Origins of Alzheimer's Disease with Treatment Techniques

Chirag K. Patel, B. Panigrahi, R. Badmanaban and C. N. Patel.....33

ABSTRACT:

Alzheimer's disease (AD) is a neurodegenerative disease caused by irregular protein formations in the brain leading to neuronal loss and ultimately affecting the patient's cognitive ability and memory. AD affects nearly 4.5 million Americans, and this number is expected to continue to rise¹. The pathological manifestations of AD occur in the neurons and are two-fold; the primary cause is the accumulation of amyloid (amyloid precursor protein) depositions, which aggregate into pathogenic plaques. The second is the accumulation of paired helical filaments that form into neurofibrillary tangles (NFTs). Amyloid precursor protein plaques result from the sequential cleavage of the amyloid precursor protein (APP) by β -secretase and γ -secretase. NFTs result from the hyperphosphorylation of tau, a stabilizing component of microtubules. Based on current understanding of the Amyloid precursor protein pathway, two major strategies will be discussed that aim at decreasing the deposition of Amyloid precursor protein plaques in the brain. In the first approach, non-steroidal anti-inflammatory drugs alter the APP cleavage site by β -secretase to produce less amyloidogenic plaques. A second method aims at inhibiting β -secretase activity on APP through allosteric inhibition of ATP binding.

RESEARCH ARTICLE

A comparative Study on the Antidiabetic Effect of *Nelumbo nucifera* and Glimperide in Streptozotocin Induced Diabetic Rats"

Poluru Rakesh, Srinivasa Reddy Panyala, Mahmoud Siddig, C Ramadas, KL Senthil Kumar and D Sathish Sekar.....39

ABSTRACT

The present study is aimed to evaluate the anti diabetic effect of *Nelumbo nucifera* rhizome and flower extracts on serum glucose level in normal and streptozotocin induced diabetic rats. The various extracts was prepared and screened for their effects on serum glucose level in rats. In streptozotocin induced animals the various extracts showed significant anti diabetic property. From the result of these studies, we can conclude that the *Nelumbo nucifera* rhizome and flower extract is a promising anti diabetic agent.

KEY WORDS: *Nelumbo nucifera*, anti diabetic activity, streptozotocin induced diabetic rats.

Evaluation of Wound Healing, Anti-Inflammatory and Antioxidant Activity of Rhizomes of *Curcuma longa*

Rita M Charde, Hemant J Dhongade, Manoj S Charde and Siddheshwar B Joshi.....42

ABSTRACT:

The present study deals with evaluation of antioxidant, wound healing and anti-inflammatory activity of ethanolic extract of *Curcuma longa* Linn rhizomes. The ethanolic extract prepared by maceration technique was subjected to screen for antioxidant activity using DPPH radical scavenging method and wound healing activity using incision, excision, histopathological and dead space wound model and the study was supported with evaluation of granuloma tissue to estimate hydroxyproline content and histopathological evaluation. The anti-inflammatory study was carried out by using carageenan induced

rat paw odema method. The tested extract of different dilutions in range 200µg/ml to 1000 µg/ml shows activity in range of 9.34% to 18.55%. Significant increase in wound closure rate, skin breaking strength, granuloma breaking strength was observed. The hydroxyproline content was also increased with decrease in scar area. The initial healing action might be due to increased collagen deposition and better alignment, with the obtained results it can be concluded that *Curcuma longa* extract has significant wound healing activity and initial healing may be due to presence of curcuminoids and antimicrobial agents. The extract shows prominent anti-inflammatory activity as compared to that of standard (Ibuprofen gel). The extract shows good anti-inflammatory activity on carageenan induced rat paw odema method.

KEY WORDS: Antioxidant, Wound healing, Anti-inflammatory, *Curcuma longa*

Wound healing and anti-bacterial effects of cassia auriculata extract

Mathew George and Lincy Joseph.....48

ABSTRACT:

AIM: Objective of the study was to find out the wound healing and antibacterial effects of *Cassia auriculata* extract in rats.

METHOD: For wound healing studies Hot water burn wounds and Wax burn wound methods used. For anti-bacterial studies cup-plate method used.

RESULTS: Indicated that the extracts of *Cassia auriculata* possessed wound healing and antibacterial activities.

KEY WORDS: Wound healing, Anti-bacterial activity, *Cassia auriculata* extract, burn, Cup-plate.

Anthelmintic and Anti-Insect Activities of Memecylon umbellatum Burm Root Extracts

SG Killedar and HN More.....52

ABSTRACT:

Different extracts of *Memecylon umbellatum* Burm root were screened for Anthelmintic and anti-insect activities using Indian earthworms (*Pheretima posthuma*) and red flour beetle, *Tribolium castaneum* (Herbst) respectively. The acetone and methanolic extracts exhibited significant ($p < 0.01$) anthelmintic and anti-insect activities compared with the control and other extracts. Albendazole and Piperazine citrate were used as standards for anthelmintic activity while Neem Extract, Celphos (Aluminium phosphide) and citronellal for anti-insect activity. Chloroform, ethyl acetate and aqueous extracts showed weak activities. Acetone root extract showed most promising Anthelmintic activity at 20mg/mi compare to albendazole and insecticidal activity at 10mg concentration comparable to standard celphos (5%). Further investigations are however necessary to explore mechanism(s) of action involved in these pharmacological activities and constituents responsible for both the activities.

KEY WORDS: Memecylon umbellatum, Anthelmintic, anti-insect, *Pheretima posthuma*, *Tribolium castaneum*.

Immunization Status of Pre-Schoolers in Slums

Rathi HB, Bansal AK and PK Shrivastav.....57

ABSTRACT:

Immunization status of 555 children were studied in a slum, Out of 555 children 509 (91.4 %) received B.C.G., 452 (84.2 %) and 438 (81.6 %) were immunized with all three doses of D.P.T. and O.P.V. respectively while only 318 (65.8 %) received Measles Vaccine. Regarding drop out rate between 1st and 3rd dose of D.P.T. and O.P.V. were 14.04 % and 3.5 % respectively. On further analysis it has been observed that Rumors was most leading cause of Non or partial immunization. To combat rumors we have to intensify information, education and communication in the Community.

KEY WORDS: Drop out, Immunization.

Evaluation of Effect of Rotenone on C6 Glial Cells by Comet Assay
B Sangamewaran, Manmeet Singh Saluja, Ajay Sharma and Chetan Dubey.....59

ABSTRACT:

Present study was performed to explore the action of rotenone on C6 glial cells. Rotenone is environmental pesticide and could specifically cause damage to dopaminergic neurons. It is well often used to make experimental models of Parkinsons disease. We have explored the effect of rotenone on glial cells at different concentrations and time points. Two time points were selected prior to their doubling time. Different cytotoxic parameters were done to investigate the effect of rotenone on cell viability. Significant decrease in cell viability was observed at increasing concentration of rotenone in time dependent manner. We performed single cell gel electrophoresis (comet assay) to investigate the DNA damage after rotenone treatment. Results found showed rotenone caused apoptotic death of glial cells in *In Vitro*. Our study could contribute in the concept of glia degeneration and helps in further explorations of better therapeutics for neurodegenerative diseases.

Role of Amniotomy plus Pitocin in Shortening of Labor as Per Cervical Dilation
A. K. Bansal, Prabha Chauhan and V. K. S. Chauhan63

ABSTRACT:

In this present study when amniotomy was done at 1 cm, 2 cms, 3 cms and 4 cms and more cervical dilatation and pitocin drip was started, the average time taken for full dilation was 6.36 hrs, 9.34 hrs and 3.03 hrs and 2.65 hrs respectively in comparison to 10.08 hrs, 7.23 hrs, 6.78 hrs and 5.4 hrs, 4.35 hrs in the control group. This shows that amniotomy and pitocin drip is effective in shortening the duration of labor. It has been further noted that there was shortening of labor of 48.46 %, 58.17 %, 60.00 % and 65.00 % in 1cm, 2cms, 3cms and 4cms cervical dilation cases respectively.

KEY WORDS: Cervical dilation, shortening labor.

Antiulcer Activity of Colebrookea oppositifolia Sm
MM Ghaisas, Surbhi Sharma, GP Ganu and RP Limaye.....66

ABSTRACT:

In the present study, the antiulcer activity of hydroalcoholic extract of roots of *Colebrookea oppositifolia* Sm. (CO) was evaluated in ethanol and swim stress induced peptic ulcer models. In both the models, various parameters like ulcer index, percentage protection, gastric wall mucus, catalase, reduced glutathione (GSH), lipid peroxidation (LPO) and superoxide dismutase (SOD) were estimated. CO significantly reduced the ulcer index and increased the gastric wall mucus in both the models. CO showed significant antioxidant activity as indicated by significant decrease in LPO and increase in catalase, GSH and SOD levels in stomach tissue homogenate. The results suggest that hydroalcoholic extract of roots of *Colebrookea oppositifolia* possess antiulcer activity due to its muco-protective action and antioxidant potential.

KEY WORDS: Antiulcer, *Colebrookea oppositifolia*, Antioxidant.

RJPPD-28

Vector control activity studies on the leaf of Zyziphus mauritiana
Sandhya S, Jafferi SAH, Vinod KR, David Banji and Narender Prasad D.....71

ABSTRACT:

The present study was undertaken to evaluate anthelmintic and larvicidal activity of crude ethanolic leaf extract of *Zyziphus mauritiana* belonging to family Rhamnaceae. Through the preliminary chemical tests it was found that the plant is rich in flavonoids, phenols, steroids and tannins. *Pheretima posthuma* was used as the test worms. Various concentrations of ethanolic extracts were tested in the anthelmintic

screening, which involved determination of time of paralysis (P) and time of death (D) of the worms. Piperazine citrate was included as standard reference and distilled water as control. In the case of larvicidal activity the study was conducted on *Culex quinquefasciatus* species of mosquito larvae and the rate of larval mortality was calculated. The results indicated that the crude ethanolic extract significantly demonstrated paralysis and also caused death of the helminth especially at higher concentration of 50 mg/ml, as compared to standard reference piperazine citrate. Similarly very optimistic results were observed for *Culex quinquefasciatus* species of mosquito larvae and LC50 value was calculated as 54.9658.

KEY WORDS: Antihelmintic; larvicidal; *Zyziphus mauritiana*;, *Pheretima posthuma*; *Culex quinquefasciatus*.

18-RJPPD-10

Anti Hyperglycemic Activity of *Cichorium intybus*, *Gymnema sylvestre*, *Aegle marmelos* in Alloxan Induced Diabetic Rats

B Eswarapriya, B Kameswari, P Devi, M Sharmila banu, B Madhumitha and R Meera.....75

ABSTRACT:

The antidiabetic activity of ethanolic fresh leaf extracts of *Cichorium intybus*, *Gymnema sylvestre*, *Aegle marmelos* in alloxan induced diabetic rats. Alloxan induced diabetic in rats (n=6) were administered ethanolic fresh leaf extracts of *Cichorium intybus* (0.25g/Kg), *Gymnema sylvestre* (0.25g/Kg) , *Aegle marmelos* (0.25g/Kg) and standard drug Glibenclamide (0.07g/Kg) for 7 days. On eight day of the treatment , blood samples were collected by puncturing the retro-orbital plexus under mild ether anesthesia and kept aside for ½ h for clotting. Blood glucose levels were determined by glucose oxidase method. Serum was separated by centrifuging the samples for 20 mins and stored in the refrigerator. The serum was analyzed for blood glucose level, total protein, cholesterol and triglycerides .These three medicinal plants of alcoholic extracts shown significant (P<0.05) reduction in blood glucose level. However, *Cichorium intybus* leaf extracts was highly effective and results are comparable with that of reference drug, glibenclamide. Diabetic animals treated with these three leaf alcoholic extracts shown significant (P<0.05) effect on serum protein, cholesterol and triglyceride level. In comparison to other extracts *Cichorium intybus* alcoholic leaf extract fraction was found to be more potent in normalizing the blood lipids and protein level in Alloxan induced diabetic rats. It is concluded that *Cichorium intybus*, *Gymnema sylvestre* and *Aegle marmelos* has significant antidiabetic activity as it lowers the blood glucose levels in diabetic rats and increases the glucose tolerance.

KEY WORDS: *Cichorium intybus*, *Gymnema sylvestre* and *Aegle marmelos*, Antidiabetic activity, alloxan – induced diabetes in rats, Fresh leaf ethanolic extracts.

19-RJPPD-23

Antidiabetic Activity of *Mukia maderaspatana* (L) Roem in Alloxan Induced Diabetic Rats

Vadivelan R, Dhanabal SP, Patil Mohan, Shanish A, Elango K and Suresh B.....78

ABSTRACT:

Diabetes mellitus is a metabolic disorder characterized by hyperglycemia. Though different types of oral hypoglycemic agents are available, there is a growing interest in herbal remedies due to effectiveness, minimal side effects in clinical experience and relatively low cost. We investigated effect of oral administration of 100 and 200 mg/kg of ethanolic extract of *Mukia maderaspatana* in diabetic and normal rats for hypoglycemic activity and antihyperglycemic activity. Diabetes was induced in male wistar albino rats of body weight 150-200 g by intraperitoneal administration of ice-cold aqueous alloxan monohydrate at dose of 150 mg/kg. Blood samples were collected for the measurement of blood glucose from the tail vein at 0, 1, 3, and 5 hr post treatment with plant extract. Glibenclamide was used as standard drug. The fasting blood glucose levels of diabetic untreated rats were significantly higher than those of normal. The ethanolic extracts of *Mukia maderaspatana* at 100 and 200 mg/kg showed 20

% and 24.4% decrease in blood glucose level respectively in diabetic rats after 5 h of treatment. Treatment with glibenclamide at 0.2 g/kg dose level show 31.8% decrease in blood glucose level in diabetic rats. The present study revealed that the oral administration of ethanolic extracts at 100 and 200 mg/kg doses exhibited a significant antihyperglycemic activity in alloxan induced diabetes and also no hypoglycemic effect was observed in normal rats.

KEY WORDS: Mukia maderaspatana; Alloxan diabetic rats; Antidiabetic activity and hypoglycemic activity

Morbidity Pattern among Children Up To Five Years of Age in a Slum

Rathi HB, Bansal AK and Sinha T.....81

ABSTRACT:

On analysis of collected data it has been revealed that upper respiratory diseases were the leading cause of morbidity among children up to five years of age and next comes gastro intestinal disorders. Ear problems were noticed third followed by skin and ophthalmic diseases.

KEY WORDS: Morbidity, slum.

RJPPD-25

Studies on Antimicrobial and Anti-inflammatory activity of the Siddha Formulation (Thailam – Medicated oil)

R Badmanaban, CN Patel, P Devi, DJ Sen KM Modh.....83

ABSTRACT:

Pongamia pinnata and Boerhaavia diffusa are well-known plants and a weed respectively plays in Indian traditional system of medicine. On the basis of its traditional use and literature references, these herbal plants are undertaken in a view to formulate milder and safer herbal topical formulations. It is prepared in the form of “Thailam” using sesame oil as base for bringing about the anti-inflammatory and antimicrobial drugs. To satisfy the desired characteristic of an ideal herbal formulation and also to prove its therapeutic potency, the following parameters like physical, chemical and biological evaluation have undertaken to fix the quality. For the antimicrobial studies strains used like S.aureus, B.subtilis (Gram +ve), E.coli, P.aeruginosa (Gram-ve) and Candida albicans, Aspergillus niger (Fungi) were used. Antibacterial activity and antifungal activity of the formulated oil was comparatively lesser than that of the standard drug but formulated oil is significantly more than that of sesame oil base (**P<0.01). By using Carrageenin induced hind paw edema method the Anti inflammatory activity was employed and it was noticed that the Thailam had lesser activity than the standard Diclofenac sodium gel (**P<0.01). But significantly more than that of sesame oil base (*P < 0.05), the overall results revealed that it has effectiveness. In conclusion that the formulated oil in the form of Thailam as its own significant properties, hence it can be used as a safer formulation in near future

KEY WORDS: Formulated oil (Thailam), Sesame oil (Base), Carrageenin, Antimicrobial strains

RJPPD-26

Antidiabetic Potential of Root Extract of Momordica cymbalaria, Fenzl in Streptozotocin Induced Diabetic Rats

KM Modh, IS Anand, B Panigrahi, CN Patel, R Badmanaban and MV Patel.....89

ABSTRACT

The effect of a aqueous extract of the roots of Momordica cymbalaria Fenzl., (Cucurbitaceae) was evaluated with streptozotocin(65 mg/kg, i.p.) induced diabetic rats. Seventy- two hours after streptozotocin injection, the extract, at doses of 250 and 500 mg/kg, was administered orally for 30 consecutive days. Oral glucose tolerance test (OGTT) and In-vitro peripheral glucose uptake studies

were also measured during this course of experiment. The extract was found to be potent antidiabetic as evidenced by significant ($p < 0.001$) reduction of serum glucose level of diabetic rats on 30th day by both the doses (maximal effect of 45.95% reduction of serum glucose level, at 500 mg/kg, $p < 0.001$). Results demonstrated a significant reduction of serum lipids (maximal effect of 50.23 and 31.89% reduction of cholesterol and triglyceride, respectively, at 500 mg/kg, $p < 0.001$) and elevation of liver glycogen level (maximal effect at 300 mg/kg, $p < 0.05$) in diabetic rats, comparable to that of standard antidiabetic glibenclamide at 500 μ g/kg, p.o. In OGTT, the extract at different doses showed significant reduction in serum glucose level ($p < 0.05$) from 30 min. onwards. The extract also revealed increase in In-vitro model for peripheral glucose uptake (not statistically significant). Improvement of body weight profile was also observed in extract-treated diabetic rats.

KEY WORDS: Momordica cymbalaria; streptozotocin induced diabetes; antihyperglycemic; antidiabetic effect

Memory Enhancing Property of Santalum album L. on Mice

S Papaiah, V Ranjith Babu, T Sivanageswara Rao, DD Jackson, KL Senthilkumar.....94

ABSTRACT:

A lot of medicinal plants, traditionally used for thousands of years, are present in a group of herbal preparations of the Indian traditional health care system (Ayurveda) named Rasayana proposed for their interesting anti-oxidant activities. But the recent study suggests that herbal drugs have a complex pathology to cure Alzheimer's disease. Alzheimer's disease is an age related neuro degenerative condition associated with cognitive. Among the different plants, one of them has been specially investigated that they have the Anti-oxidant property. A number of plants constitute the Anti-oxidant activity, in which one of them is "*Santalum album L.*". It was described in one of the siddha system that S. album possesses the property of increasing the memory and cognitive. And also in the Ayurvedic formulation *Smruthi leha* also described that S.album having the property to decrease dementia in older people. Male albino mice of weighing around 15-20 gm which are one month old were taken for study. The mice were divide into seven groups, in each group a minimum of six animals are taken. They are induce with β -amyloid protein for memory loss. These memory lossed animals are treated with the alcoholic extract of *Santalum album L.* for a period of 30 days. Then the enzyme estimation is performed on these mice. The results shows that the *Santalum album* has the property of increased enzyme levels. That it gives the conclusion that *Santalum album L.* is having the memory enhancing property.

ADMINISTRATIVE, EDITORIAL, ADVERTISING AND SUBSCRIPTION OFFICE

A and V Publication, E-282 'Saikripa' Sector-4, Pt. Deendayal Upadhyay Nagar, Raipur 492010.

(CG) India

Phone No. +919406051618. E. mail: editor.rjppd@gmail.com; Website: www.anvpublication.org