

REPORT OF WORKSHOP ON EXPERIMENTAL TECHNIQUES

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Indian Pharmacological Society-IPS, Local branch, Belgaum has been founded in 1993. Since then many CMEs have been organized to cater to the research needs of post-graduates of pharmacology & other disciplines. Most of the CMEs were lecture based programmes. Recognising the need for active learning & demonstrations, it has been decided to conduct a workshop which involves hands on training sessions.

There has been continuous progress in the screening methods of drugs with introduction of newer (modified) methods & sophisticated instruments. To cope with the recent advances, the present "I.P.S-Workshop-2012 on Experimental Techniques" was jointly organized by I.P.S, Local branch, Belgaum and Department of Pharmacology, J.N.M.C and K.L.E University's College of Pharmacy, Belgaum on 7th April 2012. These techniques will be useful for all practicing pharmacologists & research scholars. The number of delegates was restricted to 50 on the first come first serve basis.

The workshop was divided into two interactive experimental sessions. First experimental session consisted of demonstration of various screening methods for the different drugs. All the delegates were equally divided into seven groups. Each group attended all the stations on a rotation. One participant from each group had hands on training in each station on a rotation wise. In each screening method, the basic principle involved, the instruments required, operating the instruments, pre-conditioning of the animals, handling of the animals, administration of drugs to the animals and the rationale of the methods were explained by the resource person.

First station involved non invasive blood pressure measurement (NIBP) which is widely used for routine BP measurement in awake or anesthetized animals. Dr.B.S.Unger (KLE University's College of Pharmacy, Belgaum) demonstrated the method of measuring the blood pressure in rats using the cuff and NIBP software in a computer. One participant from each group measured the blood pressure of the rats. Second station consisted demonstration of endothelial studies using aortic rings of the rats. At the end of the equilibration period, rings should be contracted with a sub maximal concentration of phenylephrine, to produce 70-80% of maximal response. After reaching a plateau of contraction, cumulative concentration response curve to acetylcholine (ACh 10^{-9} - 10^{-4} M) induced relaxation was demonstrated. Dr.S.S.Biradar (College of Pharmacy) was involved in the preparation and demonstration of the method. Dr.U.A.Kagal (J.N.Medical College, Belgaum) demonstrated the screening of anti-anxiety drugs like Diazepam by using Elevated plus maze and Light/dark exploration methods. Animal models are an important aid in giving insight into the aetiology, neurobiology and the therapy of human anxiety disorders.

Catalepsy in rats is defined as a failure to correct an externally imposed, unusual posture over a prolonged period of time. Neuroleptics which have an inhibitory action on the nigrostriatal dopamine system induce catalepsy. Dr.Suneel.I.Majagi (J.N.M.C, Belgaum) demonstrated the procedure of inducing catalepsy by using Haloperidol and explained the rationale of screening of the anticataleptic drugs in rats. The excision wounds on rats were prepared sixteen days prior to the day of workshop. On the day of workshop one participant from each group induced excision wound in anesthetised rats. Normal healing procedure of the excision wounds was explained and the measurement of wound healing procedure in the drug treated animals and its comparison with that of control animals was explained by Dr.N.K.Hashilkar. Similarly, Dr.S.S.Torgal (J.N.M.C, Belgaum) was involved in the demonstration of inflicting incision wound and breaking strength of resutured healed incision wound which indirectly indicates tensile strength and collagen content of the wound. Importance of hydroxyproline estimation in granulation tissue, histological studies etc were highlighted. In all the above steps participants had hands on training individually. For all the animal experiments prior permission from the Institutional Animal Ethics Committee (IAEC) had been taken.

Dr.K.K.Hullatti (KLE U'sity College of Pharmacy, Belgaum) demonstrated the method of soxhlet distillation. He explained the principles of the soxhlet apparatus, different types of solvents used like ethanol, methanol and water as well as the uses of distillation.

After the lunch, second experimental session was started. This session consisted of five stations demonstrating different sophisticated instruments. Each station involved explanation and demonstration about the principles and uses of each sophisticated instrument. Here the delegates were divided into five groups. Each group attended the individual stations on rotation. One or two participants in each group handled the instruments personally to get acquainted. All the resource persons in this session were from KLE University's College of Pharmacy, Belgaum.

Dr.S.Alegaon demonstrated the Fourier Transform Infrared (FTIR) station. FTIR spectroscopic method is useful for structural elucidation of isolated compounds like terpenoids, flavonoids, hydroxyl, ester carbonyl, phenyl, methyl, methoxy, ethoxy etc., from the herbal medicine/products. Dr.S.Patnala was in charge of High Performance Liquid Chromatography (HPLC) & Autoanalyser. HPLC is a chromatographic technique used in analytical chemistry and biochemistry to separate a mixture of compounds. HPLC technique is commonly used for identifying, quantifying and/or purifying the individual components of the mixture. The main parts of a HPLC system are solvent delivery pump, sample injector, packed column, detector and integrator. Dr.M.S.Palled demonstrated the U.V. Spectrophotometer. Study of how the chemical compound interacts with different wavelengths in a given region of electromagnetic radiation is called spectroscopy or spectrochemical analysis. The absorption of ultraviolet radiation by molecules is dependent upon the electronic structure of the molecule. So the ultraviolet spectrum is called electronic spectrum.U.V spectrophotometer can be used for detection of impurities, qualitative analysis, quantitative analysis of pharmaceutical substances, dissociation constants of acids/bases etc.

Dr.Kalpana.Patil was incharge of High Performance Thin Layer Chromatography (HPTLC) station. Chromatography method is used for separation of multi-component mixtures. HPTLC is a modern powerful analytical technique with separation power, performance and reproducibility superior to conventional TLC. It provides a means for flexible quantitative screening methods. Instrumentations of HPTLC are sample applicator linomat, pre-coated plates, TLC scanner, UV cabinet, developing chamber etc. It is fully automated device useful in analysis of any compound. Multiple samples can be analyzed at the same time. Thus it is cost effective. Automated sample application and scanning takes only 25 to 30 minutes. It involves user friendly documentation and the results can be printed. All samples on the plate can be compared with each other. It can be used for: clinical applications like lipids screening, drug screening, doping control, food analysis like quality control, additives (e.g: vitamins), pesticides, stability tests (expiration) and pharmaceutical applications like quality control, content uniformity test, identity and purity checks, stability tests. Dr.S.S.Jalalpure demonstrated the Gas Chromatography (GC). Chromatography is used in analytical chemistry for separating different compounds. Uses of GC include testing the purity of a particular substance or separating the different components of a mixture. In some situations GC may help in identifying a compound. In preparative chromatography, GC can be used to prepare pure compounds from a mixture.

In the valedictory function, feedback from the delegates was obtained. Dr.Suneel.I.Majagi, Organizing secretary of the workshop and Secretary, I.P.S, Belgaum branch proposed vote of thanks and the certificates were distributed to the participants. Delegates from various medical colleges and other health institutions from Karnataka, Andhra Pradesh, Goa, Tamil Nadu and Maharashtra participated in the Workshop.