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Formulation of letrozole nanosuspension by probe sonication method**Abbaraju Krishna Sailaja***Osmania University, India*

Background: Letrozole (LTZ), an aromatase inhibitor used for the treatment of hormonally positive breast cancer in postmenopausal women. Letrozole is categorized as a BCS class II drug. It has poor water solubility, rapid metabolism and a range of side effects.

Objective: The present study was aimed, to formulate nanosuspension using probe sonication method for the enhancement of solubility of Letrozole using polyvinyl alcohol(PVA) as stabilizer.

Methods: The formulation scheme was generated by using Box-Behnken design which is a statistical tool of design of experiments. Total seventeen formulations were performed for letrozole nanosuspension as suggested by Box-Behnken design by employing probe sonication method. The selected formulations are characterized for particle size and zeta potential. The formulations were checked on percentage of bias in between predicted value and observed value and evaluated for drug content and invitro dissolution study. The formulation was optimized using Box-Behnken design based on invitro cumulative drug release.

Results: Among all the formulations NS4 was considered to be best with minimum Particle size of 923.5nm, Zeta potential value of -28.7mV, 96.36% of drug content and 94.02% of drug release within 2 hours. Solubility was determined by shake flask method.

Conclusion: It was observed that the solubility has enhanced up to 90% when compared to pure drug by using polyvinyl alcohol as stabilizer.