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Formulation, *invitro* and *invivo* analysis of cyclodextrin complexed albendazole composites for enhanced solubility

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Abstract : Albendazole is a low water soluble benzimidazole carbonate drug, extensively used against instestinal parasites due to its broad spectrum activity, good tolerance and low cost. The drug has a disadvantage of poor bioavailability due to very low solubility in water. The main objective of the study was to increase the solubility and dissolution rate by complexing with cyclodextrins by kneading method and to compare the solubility between hydroxypropyl beta cyclodextrin and beta cyclodextrin. Solid state characterization was done by FTIR and thermo gravimetric analysis. Increased solubility was obtained when more substituted cyclodextrins were used instead of non substituted cyclodextrins. High oral dose of albendazole is required for treating systemic helminthiasis which can lead to liver impairment, so the main aim of the study was to analyse liver enzymes using albino wistar rats. For enzyme determination, blood samples were collected from each rat after 48hrs of drug administration via retro-orbital puncture method and allowed to clot. From the studies it was found that elevation in liver enzymes is less in case of ABZ-HPβCD complexed suspensions than the other formulations. Drug release studies and kinetic profiles help to find out the release of drug from cyclodextrins and it was found out that ABZ-HPβCD suspension having better release profile than the ABZ-βCD.

Key words : Liver enzymes, cyclodextrins, solubility, albino wistar rats, liver toxicity, Albendazole.

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