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In Vitro Evaluation of Commercially Available Theophylline Sustained Release Tablets in Pakistan

Nazar M. RANJHA*, Jahanzeb MUDASSIR, Tanveer ABBAS,
Mohammad A.F. SIAM & Abid HUSSAIN

Faculty of Pharmacy, Department of Pharmacy, Bahauddin Zakariya University Multan, Pakistan.

SUMMARY. The dissolution behavior of five commercially available brands of sustained release theophylline tablets was studied in phosphate buffer solutions of pH 1.2, 4.5, 5.5, 6.0 and 7.5 at 37 °C using the USP dissolution apparatus II (paddle method). Drug concentration in the samples was determined spectrophotometrically at 272 nm. For predicting the release characteristics of theophylline from selected commercially available tablets the data obtained in the dissolution studies was fitted into various mathematic models defining kinetic parameters of drug release like zero-order rate equation, first-order rate equation, Hixen-crowell cube root law, Higuchi equation and Korsemeyer-Peppas model. Tablets were subjected to weight variation test, hardness, drug content and *in vitro* release studies. The present study revealed that drug release increases with the increase of pH of the dissolution medium and also varies from brand to brand. Among the five selected brands, B1 and B4 showed better pH dependency and drug release behaviour. It has been suggested that possible reasons for difference in dissolution or drug release behaviour are the difference in the manufacturing techniques and the quantity of hydrophobic excepients used by different manufacturers, which retard the penetration of dissolution medium and ultimately decreases availability of drug in the solution.

KEY WORDS: In vitro studies, Sustained release, Tablets, Theophylline.

* Author to whom correspondence should be addressed. *E-mail:* nazar_ranjha@hotmail.com