In vitro conditions for the study of the in vivo performance of sustained-release theophylline matrix tablets administered in fasted conditions and with a high-fat diet

Andonaegui,

Barría,

Thielemann,

Seitz,

Gai,

Dissolution profiles of theophylline (TP) from three types of sustained- release (SR) matrix tablets (plastic [PL], lipid [LP], and hydrophilic [HP]) in different dissolution media, with and without enzymes, were established. Also investigated was the influence of a treatment of the tablets with peanut oil prior to the dissolution test. The in vivo behavior of the tablets under the fasted state and with the concomitant administration with a high-fat diet was previously evaluated; the diet produced changes in the absorption profiles for the three matrix tablets in comparison with fasted administration. Level A correlations were obtained between cumulative percentage dissolved (CPD) and cumulative percentage absorbed (CPA). For the fasted condition, better correlations were obtained with water as the dissolution medium for the HP and LP matrix; for PL matrix, the best correlation was obtained with a medium with gradual change of pH. The pretreatment with peanut oil showed better correlat