Assessment of Solubility and Intestinal Absorption In Vitro of Praziquantel in Solid Dispersions of Polyethylene Glycol 6000

Eliane M. CORRÊA 1, Marta M.D.C. VILA 1, José M.O. JUNIOR 1, Roney E. ZAPAROLI 1, Márcia M. GRANATO 1, Arielly L. GOES 1, Larissa C. MORAES 1, Fábio C. PAULA 2 & Marco V. CHAUD 1*

1 Laboratory for Development and Evaluation of Bioactive Substances, Pharmacy College, Sorocaba University (UNISO), Rodovia Raposo Tavares, Km 92.5, 18023-000 – Sorocaba, São Paulo, Brazil,
2 Medicine College, Ribeirão Preto University (UNAERP), Ribeirão Preto, São Paulo, Brazil

SUMMARY. The aim of this study was to investigate the impact of solid dispersions of polyethylene glycol 6000 (PEG 6000), using the co-precipitation method, on the in vitro solubility and intestinal absorption of praziquantel (PZQ). The solubility of PZQ in solid dispersions and physical mixtures was assessed in purified water and TC-199 buffer. The everted intestinal sac model was employed to assess, in vitro, intestinal absorption of PZQ. A significant enhancement in both in vitro solubility and intestinal absorption of PZQ was found in solid dispersions compared to pure PZQ and physical mixtures. This positive series of preliminary results showed that solid dispersion of PEG 6000 is a valuable strategy for increasing bioavailability of PZQ and could also prove useful for other poorly water-soluble drugs.

KEY WORDS: Intestinal absorption, Polyethylene glicol 6000, Praziquantel solubility, Solid dispersion.

* Author to whom correspondence should be addressed. E-mail: marco.chaud@prof.uniso.br