

Thesis title Effects of Dietary Fibre on Paracetamol
 Bioavailability

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ABSTRACT

The previous published study performed in this laboratory indicated a slow and reduced absorption of paracetamol in Thai vegetarians. The present study aims to determine the pharmacokinetic parameters of paracetamol in Thai healthy volunteers and investigate further the effects of dietary fibre on the absorption and disposition of this drug.

The study was a cross-over design with washout period. Following an overnight fast, 12 healthy male Thai volunteers, with age ranging from 26 to 41 y, were given paracetamol orally at the dose of 20 mg/kg. The medication was dissolved in 250 ml of "Pepsi Cola" and taken with or without 30 g of "Metamucil", containing approximately 9 g of psyllium hydrophilic mucilloid. Venous blood samples were drawn from an indwelling cannula at 0, 0.5, 0.75, 1, 1.5,

2, 3, 4, 6, 8 and 24 h postdose. All the samples were stored at -20°C until analyses for paracetamol and its metabolites by HPLC method.

The mean maximum plasma concentrations (C_{max}) and the time to reach peak concentrations (T_{max}) of paracetamol were 19.8 ± 3.9 mg/l and 0.65 ± 0.29 h, respectively. The mean plasma half-life was 2.48 ± 0.55 h. These values were not significant difference from those obtained when paracetamol was given together with "Metamucil". However, the area under the plasma concentration-time curve (AUC) determined between 0-2 h was significantly greater with fibre than without (30.3 ± 4.2 VS 26.7 ± 3.3 mg/l/h) whereas the AUC 0-8 h from both experiments were similar. The extent of paracetamol metabolism was more or less similar in both groups. It can be, therefore, predicted that the C_{max} of paracetamol when given without fibre should be reached within less than 30 min after drug administration.

The relative bioavailability of paracetamol when given with fibre was 1.14 which indicated that dietary fibre may interfere with the rate but not the extent of paracetamol absorption. These data suggest a minor delay in the absorption of paracetamol when taken with fibre. These findings are also consistent with the data obtained from the Caucasian healthy volunteers.