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The effect of *Camellia sinensis L* (tea) on paracetamol pharmacokinetics in rats

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Paracetamol (acetaminophen) is a commonly used analgesic drug and sometimes taken with a cup of tea (*Camellia sinensis*). Tea contains polyphenols, caffeine and other methylxanthines which can affect the metabolism of paracetamol. Therefore the present study was performed in rats to investigate the effect of tea infusion on paracetamol pharmacokinetics.

Paracetamol was administered (108.5 mg/ kg body weight) via a feeding tube to Sprague-Dawley rats, with water (n=4) or tea infusion (2 mL; n=4). Serum was analysed by reverse phase high performance liquid chromatography with electrochemical detector. Serum concentrations of paracetamol (% of the administered dose/ ml of serum) were analysed for pharmacokinetics using open two-compartment model with first order absorption and first order elimination.

Paracetamol was absorbed rapidly and peak plasma concentration (C_{max}) was achieved at 1 h following administration of paracetamol with water or with tea infusion. No significant difference ($P<0.05$) was shown in the rate of absorption (k_a) and the values (Mean±SEM) were 9.24E-01±0.028E-01 (h^{-1}) and 9.27E-01±0.019E-01 (h^{-1}) for paracetamol with distilled water and paracetamol with tea respectively.

A significant decrease ($P<0.05$) in serum paracetamol concentration was observed at 1 and 2 h following administration of paracetamol with tea infusion compared to paracetamol with distilled water. Maximum serum concentration (C_{max}) and the area under the curve (AUC) were decreased ($P<0.05$) by 42.7 % and 66.24 % respectively when paracetamol was administered with tea infusion.

These findings suggest that, the metabolism of paracetamol is increased by the constituents of tea.

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