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Herb-drug interactions: The effects of coriander (*Coriandrum sativum*) seed extract on serum paracetamol levels in rat

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Paracetamol is considered to be one of the safest over-the-counter drugs which is used to relieve mild to moderate pain. However hepatotoxicity may result in paracetamol over dosage due to its metabolism via a Cytochrome P450 enzyme dependant pathway. Coriander extract obtained from seed has been used for home therapy in Sri Lanka for common cold and fever and sometimes taken together with paracetamol. Herbal medicines sometimes interact pharmacokinetically and pharmacodynamically, with prescription medications. The presnt study was carried out to investigate the effect of coriander extract on serum paracetamol levels in rats. Single dose of paracetamol was administered (108.5g/kg body weight) with water (n=5) or coriander extract (n=6) to Sprague-Dawley rats. Blood was drawn at different time intervals over a period of 25 hours. Serum paracetamol levels were analysed by reverse-phase high performance liquid chromatography with electrochemical detector. Paracetamol was rapidly absorbed when administered with coriander extract compared to water. The time taken to achieve the peak serum concentration (Tmax) $\pm$SEM was 0.625$\pm$0.08h following administration of paracetamol with coriander extract in contrast to 1.05$\pm$0.20h with water. Further constituents of coriander extract increased the peak serum paracetamol concentration by 1.3

folds (P=0.001) and maintained at a higher level (P<0.05) over the first 45 mins. The area under the curve (AUC $_{0\text{-}24}$) increased by 1.5 folds (P=0.032) and elimination -half life decreased by 1.8 fold (P=0.02) when coriander extract was given. These results suggest that co-administration of paracetamol increases the serum paracetamol levels in rats. Considering the above findings, similar studies in humans are needed to evaluate the safety and effective use of drugs with herbal medicines.

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