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Effects of rooibos tea on lipid peroxidation in healthy male subjects

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Objective: Free radicals have been implicated as important pathologic factors in kidney stone formation. Over-production of free radicals leads to an imbalance resulting in oxidative stress and lipid peroxidation (Sakac and Sakac, 2000). Previous results suggested that oxalate (Ox) aids in the generation of free radicals and induction of lipid peroxidation (Hille and Massey, 1985). An important indicator for oxidative stress is N-acetyl-β-D-glucosaminidase (NAG) which is secreted in urine and can be used to determine the severity of renal disease (Furuhata *et al*, 1995). The present study aims to test the hypothesis that Rooibos tea (RT), a well-known antioxidant, may be useful in reducing lipid peroxidation and hence the risk of stone formation.
Methods: Five healthy male participants with no history of kidney stones were recruited. Each ingested 250 ml of RT (Freshpak Rooibos Tea, Entyce Beverages, South Africa) twice a day (at breakfast and supper) for 30 days. Twenty-four urine samples were collected at baseline and day 30. These were analysed for NAG activity to determine the extent of lipid peroxidation using commercially available kits (N-acetyl-β-D-glucosaminidase Assay kit, Roche Products (Pty Ltd).
Results: The NAG activity, decreased substantially after ingestion of RT (1.08±0.73 vs 0.39±0.09 U/L). However this decrease was not statistically significant p-value>0.99.
Conclusion: The observed decrease in the NAG activity post-tea ingestion is encouraging albeit not statistically significant, as it indicates a potential reduction in lipid peroxidation. Future studies involving a larger cohort of subjects and administration of a higher dosage, may demonstrate a significant decreases in NAG activity. Therefore Rooibos tea may play a protective role against lipid peroxidation and hence be a potential therapeutic agent for managing CaOx kidney stones.