

abstract

Ethnopharmacological relevance: In South Africa, the plant *Aspalathus linearis* (Brum.f) Dahlg. (Fabaceae) is traditionally used as a "tea" referred to as rooibos or redbush. This plant has been listed as a medicinal plant based mostly on anecdotal evidence.

Aims of the study: Despite a long history of traditional use in South Africa, very little scientific data are available from controlled clinical trials confirming its popular use. The aim of the present study was to investigate the effect of rooibos on biochemical and oxidative stress parameters in adults at risk for cardiovascular disease.

Materials and methods: After a washout period of 2 weeks, 40 volunteers consumed six cups of fermented/traditional rooibos daily for 6 weeks, followed by a control period. Blood biochemical parameters indicative of antioxidant activity and content (total polyphenols), lipid peroxidation (conjugated dienes – CDs, thiobarbituric acid reactive substances – TBARS), redox status (total glutathione – tGSH, ratio of reduced to oxidized glutathione – GSH:GSSG), lipid profile (total cholesterol, low density lipoprotein – LDL and high density lipoprotein – HDL cholesterol and triacylglycerol levels) and liver and kidney function were measured at the end of each study period.

Results: Plasma antioxidant capacity was not altered, but plasma total polyphenol levels increased significantly after rooibos consumption compared with the control levels (from 79.8 ± 16.9 mg/L to 89.8 ± 14.1 mg/L). Significant decreases in plasma markers of lipid peroxidation were found after rooibos consumption, as reported by levels of CDs (167.3 ± 29.5 nmol/mL vs. 108.8 ± 20.1 nmol/mL) and TBARS (1.9 ± 0.6 mol/L vs. 0.9 ± 0.3 mol/L). Reduced glutathione (797 ± 238 mol/L vs. 1082 ± 140 mol/L) and the GSH:GSSG ratio (41 ± 14 vs. 76 ± 17) were both significantly increased after consumption of rooibos. The lipid profiles showed that rooibos consumption, compared with the control values, significantly decreased serum LDL-cholesterol (4.6 ± 1.3 mmol/L vs. 3.9 ± 0.7 mmol/L) and triacylglycerols (1.7 ± 0.8 mmol/L vs. 1.2 ± 0.7 mmol/L), while HDL-cholesterol (0.9 ± 0.1 mmol/L vs. 1.2 ± 0.2 mmol/L) was significantly increased.

Conclusion: Confirming its popular use, consumption of fermented, traditional rooibos significantly improved the lipid profile as well as redox status, both relevant to heart disease, in adults at risk for developing cardiovascular disease.

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