

The Effects of Various Storage Scenarios on the Viability of Rooibos Tea Characteristically Used for Research

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Abstract : Rooibos (*Aspalathus linearis*) is a shrub-like bush native to the Western Cape of South Africa and commonly consumed as a herbal tea. Interest on the anti-oxidant capabilities of the tea have risen based on anecdotal evidence. Rooibos contains polyphenols that contribute to the overall antioxidant capacity of the tea. These polyphenols have been reported to attenuate the effects of oxidative stress in biological systems. The bioavailability of these compounds is compromised when exposed to light, pH fluctuations, and oxidation. It is crucial to evaluate whether the polyphenols in a typical rooibos solution remain constant over time when administered to rats in a research environment. This study aimed to determine the effects of various storage scenarios on the phenolic composition of rooibos tea commonly administered to rodents in experimental studies. A standardised aqueous solution of rooibos tea was filtered and divided into three samples namely fresh, refrigerated, and frozen. Samples were stored in air tight, light excluding bottles. Refrigerated samples were stored at 4°C for seven days. Frozen samples were stored for fourteen days at -20°C. Each sample consisted of two subgroups labeled day 1 and day 7. Teas marked day 7 of each group were kept in air tight, light protected bottles at room temperature for an additional week. All samples (n=6) were freeze-dried and underwent polyphenol characterization using liquid chromatography-mass spectrometry. The phenolic composition remained constant throughout all groups. This indicates that rooibos tea can be safely stored at the above conditions without compromising the phenolic viability of the tea typically used for research purposes.

Keywords : *Aspalathus linearis*, experimental studies, polyphenols, storage

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