# The protective effect of Rooibos in LPS-induced skin inflammation

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Numerous studies have shown the link between chronic inflammation and an increased risk of cancer. Therefore, finding effective ways to reduce inflammation and cancer initiation has become a priority. Dietary constituents can selectively modulate the drug-metabolizing enzymes thereby altering the metabolic fate of the carcinogen in the cell. Recently the focus has shifted to pure and natural compounds present in fruits and vegetables and beverages such as wine and tea. Epidemiological studies indicate that the frequent consumption of certain tea constituents has an important role in reducing the risk for cancer development in humans. Oxidative stress is due to the excessive production of reactive oxygen species (ROS), generated during the inflammatory process. Various studies have revealed that polyphenols display anti-inflammatory, immune-modulatory, antioxidant and anti-cancer properties. Polyphenols regulate immunity by interfering with immune cell regulation, proinflammatory cytokines' synthesis, and gene expression. Rooibos (*Aspalathus linearis*), an indigenous South African herbal tea, has gained popularity with consumers and researchers worldwide and its antioxidant, antimutagenic, antidiabetic, anticancer, and anti-inflammatory properties are well established. Lipopolysaccharide (LPS), a component of the cell wall of gram-negative bacteria, triggers the release of proinflammatory cytokines, which activates the immune response. In this study, the effects of LPS-induced inflammation and oxidative responses in skin, and the possible protective effects of rooibos extracts were investigated. Rooibos exhibited anti-inflammatory activity by attenuating the secretion of the pro-inflammatory cytokine IL-8, which was accompanied by a decrease in cell proliferation and an increase in apoptosis. Further studies are necessary to elucidate the underlying protective mechanisms and search for biomarkers that can be used in the early detection and prevention of skin carcinogenesis by rooibos. The subsequent evaluation of the cancer modulating properties of rooibos and its polyphenolic compounds, utilising these biological biomarkers could have important implications for their possible use as chemopreventive agents in clinical settings to reduce the prevalence of skin cancer.