

## Selective bronchodilatory effect of Rooibos tea (*Aspalathus linearis*) and its flavonoid, chrysoeriol

**Summary Background** Rooibos tea (*Aspalathus linearis*) is commonly used for hyperactive gastrointestinal, respiratory and cardiovascular disorders. **Aim of study** The aqueous extract of Rooibos tea (RT) was studied for the possible bronchodilator, antispasmodic and blood pressure lowering activities in an attempt to rationalize some of its medicinal uses. **Methods** Isolated tissue preparations, such as rabbit jejunum, aorta and guinea-pig trachea and atria were set up in appropriate physiological salt solutions and aerated with carbogen. For in vivo studies rats were anesthetized with pentothal sodium and blood pressure was measured through carotid artery cannulation. **Results** In jejunum, RT caused a concentration-dependent relaxation of low K<sup>+</sup> (25 mM)- induced contractions, with mild effect on the contractions induced by high K<sup>+</sup> (80 mM). In presence of glibenclamide, the relaxation of low K<sup>+</sup>-induced contractions was prevented. Similarly, cromakalim caused glibenclamide-sensitive inhibition of low K<sup>+</sup>, but not of high K<sup>+</sup>, while verapamil did not differentiate in its inhibitory effect on contractions produced by the two concentrations of K<sup>+</sup>. Like in jejunum, RT caused glibenclamide- sensitive relaxation of low K<sup>+</sup>-induced contractions in trachea and aorta, but with a 20 times higher potency in trachea. In atria, RT was least potent with weak inhibitory effect on atrial force and rate of contractions. RT caused a dose-dependent fall in arterial blood pressure in rats under anesthesia. Among the tested pure compounds of Rooibos, chrysoeriol showed selective bronchodilator effect. Chrysoeriol (luteolin 3C-methyl ether) is a bioactive flavonoid known for antioxidant, antiinflammatory, antitumor, antimicrobial, antiviral, and free radical scavenging activities. **Conclusion** These results indicate that the bronchodilator, antispasmodic and blood pressure lowering effects of Rooibos tea are mediated predominantly through KATP channel activation with the selective bronchodilatory effect. This study provides a sound mechanistic basis for the wide medicinal use of Rooibos tea, with the therapeutic potential to be developed for congestive respiratory ailments.