

Rooibos research in laboratories around the world has resulted in a convincing body of evidence confirming its health properties. The key findings of these studies are summarised below, with the complete scientific reference for each study or research review.

## Results from animal studies

### **Rooibos helps damaged liver tissue to regenerate and can help prevent and treat liver disease.**

Uličná, O., Vančová, O., Waczulíková, I., Božek, P., Janega, P., Babál, P., Líšková, S., Greksák, M., 2008. Does rooibos tea (*Aspalathus linearis*) support regeneration of rat liver after intoxication by carbon tetrachloride? *General Physiology and Biophysics* 27, 179-186.

### **Rooibos prolongs fertility and delays ageing in Japanese quails.**

Juráni, M., Lamošová, D., Máčajová, M., Kostál, L., Joubert, E., Greksák, M., 2008. Effect of rooibos tea (*Aspalathus linearis*) on Japanese quail growth, egg production and plasma metabolites. *British Poultry Science* 49, 55-64.

### **Rooibos helps fight allergies by boosting the production of cytochrome P450, an important enzyme in the intestine that helps to metabolise allergens.**

Matsuda, K., Nishimura, Y., Kurata, N., Iwase, M., Yasuhara, H., 2007. Effects of continuous ingestion of herbal teas on intestinal CYP3A in the rat. *Journal of Pharmacological Science* 103, 214-221.

### **Rooibos restores immune function in immune-suppressed rats.**

Ichiyama, K., Tai, A., Yamamoto, I., 2007. Augmentation of antigen-specific antibody production and IL-120 generation with a fraction from rooibos (*Aspalathus linearis*) tea. *Bioscience Biotechnology and Biochemistry* 71, 589-602.

### **The phenolic compounds in herbal teas have a strong anti-mutagenic (cancer fighting) effect. They protect against DNA damage, an important step in the development of cancer.**

Van der Merwe, J.D., Joubert, E., Richards, E.S., Manley, M., Snijman, P.W., Marnewick, J.L., Gelderblom, W.C.A., 2006. A comparative study on the antimutagenic properties of aqueous extracts of *Aspalathus linearis* (rooibos), different *Cyclopia* spp. (honeybush) and *Camellia sinensis* teas. *Mutation Research* 611, 42-53.

### **Chrysoeriol, one of the bio-active components of Rooibos, is an effective bronchodilator, while it also lowers blood pressure and relieves spasms.**

Khan, A., Gilani, A.H., 2006. Selective bronchodilatory effect of rooibos tea (*Aspalathus linearis*) and its flavonoid, chrysoeriol. *European Journal of Nutrition* 45, 463-469.

### **Rooibos is effective in treating stomach cramps and diarrhoea, due to the calming effect of the flavonoids on the digestive system.**

Gilani, A.H., Khan, A., Ghayur, M.N., Ali, S.F., Herzig, J.W., 2006. Antispasmodic effect of rooibos tea (*Aspalathus linearis*) is mediated through K<sup>+</sup> channel activation. *Basic Clinical Pharmacology and Toxicology* 99, 365-373.

### **South African herbal teas (Rooibos and Honeybush extracts) protect against the growth of lesions associated with skin cancer.**

Marnewick, J.L., Joubert, E., Joseph, S., Swanevelder, S., Swart, P., Gelderblom, W.C.A., 2005. Inhibition of tumour promotion in mouse skin by extracts of rooibos (*Aspalathus linearis*) and honeybush (*Cyclopia intermedia*), unique South African herbal teas. *Cancer Letters* 224, 193-202.

### **Rooibos induces enzymes in the liver of rats which protect against the DNA damaging effects of cancer causing agents.**

Marnewick, J.L., Batenburg, W., Swart, P., Joubert, E., Swanevelder, S., Gelderblom, W.C.A., 2004. *Ex vivo* modulation of chemical-induced mutagenesis by subcellular liver fractions of rats treated with rooibos (*Aspalathus linearis*) and honeybush (*Cyclopia intermedia*) as well as green and black (*Camellia sinensis*) teas. *Mutation Research* 558, 145-154.

**Rooibos has the potential to protect the liver, and may offer specific protection against acute liver damage.**

Kucharská, J., Uličná, O., Gvozdjaková, A., Sumbalová, Z., Vančová, O., Božek, P., Nakano, M., Greksák, M., 2004. Regeneration of coenzyme Q<sub>2</sub> redox state and inhibition of oxidative stress by rooibos tea (*Aspalathus linearis*) administration in carbon tetrachloride liver damage. *Physiology Research* 53, 515-521.

**Rooibos modulates the level of enzymes in the liver that will enhance the excretion of compounds that can cause cancer.**

Marnewick, J.L., Joubert, E., Swart, P., Van der Westhuizen, F., Gelderblom, W.C.A., 2003. Modulation of hepatic drug metabolizing enzymes and oxidative status by green and black (*Camellia sinensis*), rooibos (*Aspalathus linearis*) and honeybush (*Cyclopia intermedia*) teas in rats. *Journal of Agricultural and Food Chemistry* 51, 8113-8119.

**Rooibos protects red blood cells against hemolysis (breaking up).**

Simon, M., Horovska, L., Greksak, M., Dusinsky, R., Nakano, M., 2000. Antihemolytic effect of rooibos tea (*Aspalathus linearis*) on red blood cells of Japanese quails. *General Physiology and Biophysics* 19, 365-371.

## Results from clinical trials (involving people)\*

**An intervention study in 2007 showed that Rooibos decreased lipid peroxidation levels, whilst increasing (favourable) GSH concentration. The study was conducted on workers occupationally exposed to lead, but no effect on lead levels was observed.**

Nikolova, V., Petrova, S., Petkova, V., Pavlova, A., Georgieva, T., 2007. Antioxidant effects of rooibos tea on workers occupationally exposed to lead. *Toxicology Letters* 172(S), 120-121.

**Neither Rooibos, nor black tea, had an adverse effect of the iron status of school children.**

Breet, P., Kruger, H.S., Jerling, J.C., Oosthuizen, W., 2005. Actions of black tea and rooibos on the iron status of primary school children. *Nutrition Research* 25, 983-994.

**There were no significant changes in blood parameters or antioxidant status of 20 participants who took a twice daily oral dose of 250 mg aspalathin-enriched Rooibos extract in tablet form for two weeks.**

Sauter, W., 2004. Vergleich antioxidativer Eigenschaften von Extrakten aus *Camellia sinensis*, *Rosmarinus officinalis*, *Cyclopia genistoides*, *Cyclopia sessiliflora* und *Aspalathus linearis*. PhD Dissertation, Technischen Universität München, Weihenstephan, Germany.

**Inflammatory skin diseases subsided after treatment with Rooibos. It decreased the incidence of a viral infection (*herpes simplex*) within days and successfully relieved the itching in patients with atopic dermatitis. Rooibos also made the skin less sensitive to the sun (UV radiation).**

Shindo, Y., Kato, K., 1991. Effect of rooibos tea on some dermatological diseases. Proceedings of the International Symposium on Tea Science. The Organizing Committee of ISTS, Shizuoka, Japan, p. 385-389.

**A 1982 study on the anti-allergic properties of Rooibos could not demonstrate that Rooibos decreased the response of the skin after a prick test with 16 common allergens.**

Hesseling, P.B., Joubert, J.R., 1982. The effect of rooibos tea on the type I allergic reaction. *South African Medical Journal* 62, 1037-1038.

## Rooibos research reviews

**Current knowledge on the anti-cancer and other protective properties of Rooibos and honeybush are summarised in a comprehensive 37-page review, citing more than 100 references to Rooibos research since the early 1950s.**

Joubert, E., Gelderblom, W.C.A., Louw, A., De Beer, D. 2008. South African herbal teas: *Aspalathus linearis*, *Cyclopia* spp. and *Athrixia phyllicoides* – A review. *Journal of Ethnopharmacology*, 119 (3), 376-412.

**Rooibos and honeybush possess potent antioxidant and immune-boosting components that can protect against cancer-causing chemicals and no adverse affects of drinking Rooibos have been reported.**

McKay, L., and Blumberg, B., 2006. A Review of the Bioactivity of South African Herbal Teas: Rooibos (*Aspalathus linearis*) and Honeybush (*Cyclopia intermedia*). *Phytotherapy Research* 21, 1-16.

**The antioxidants in Rooibos are potent free radical scavengers. It is the only known natural source of the antioxidant aspalathin and it also contains the rare antioxidant nothofagin. Rooibos is safe and may help protect against free radical damage, which can lead to cancer, heart attack and stroke.**

Erickson, L. 2003. *HerbalGram*. 59:34-45. (A review by the American Botanical Council).

\*The preliminary findings of the first clinical trial on adults at risk of heart disease show that Rooibos can protect the body against oxidative damage that leads to vascular disease. The findings of this study (conducted in 2007 and 2008 at the Cape Peninsula University of Technology) will be submitted for publication. Find out more about Rooibos research at [www.sarooibos.org.za](http://www.sarooibos.org.za). November 2008