

# Chemoprotective properties of rooibos (*Aspalathus linearis*), honeybush (*Cyclopia intermedia*) herbal and green and black teas (*Camellia sinensis*) against cancer promotion induced by fumonisin B<sub>1</sub> in rat liver

## **abstract**

The chemoprotective properties of unfermented and fermented rooibos (*Aspalathus linearis*) and honeybush (*Cyclopia intermedia*) herbal teas, and green and black teas (*Camellia sinensis*) were investigated against fumonisin B<sub>1</sub> (FB<sub>1</sub>) promotion in rat liver utilizing diethylnitrosamine (DEN) as cancer initiator. The various teas differently affected the clinical chemical parameters associated with liver and kidney damage associated with FB<sub>1</sub> suggesting specific FB<sub>1</sub>/iron/polyphenolic interactions. Green tea enhanced ( $P < 0.05$ ) the FB<sub>1</sub>-induced reduction of the oxygen radical absorbance capacity, while fermented herbal teas and unfermented honeybush significantly ( $P < 0.05$ ) decreased FB<sub>1</sub>-induced lipid peroxidation in the liver. The teas exhibited varying effects on FB<sub>1</sub>-induced changes in the activities of catalase, glutathione peroxidase (GPx) glutathione reductase (GR) as well as the glutathione (GSH) status. Unfermented rooibos and honeybush significantly ( $P < 0.05$ ) to marginally ( $P < 0.1$ ) reduced the total number of foci ( $>10 \mu\text{m}$ ), respectively, while all the teas reduced the relative amount of the larger foci. Fermentation seems to reduce the protective effect of the herbal teas. Differences in the major polyphenolic components and certain FB<sub>1</sub>/polyphenolic/tissue interactions may explain the varying effects of the different teas on the oxidative parameters, hepatotoxic effects and cancer promotion in rat liver.