## ABSTRACT

**Background:** Tea is a beverage that is most widely consumed worldwide. Studies have shown that oral consumption of tea has health benefits however, there is paucity of data in Kenya detailing the biochemical effects of tea in the liver and elucidation of its mechanism of action.

**Methods:** The polyphenol composition and antioxidant capacity of tea were determined by HPLC and the Folins Ciocalteu spectrophotometric methods. Metal levels were determined using flame Atomic Absorption Spectrometer (AAS). Aqueous black and green tea extracts were administered to the rats at dosages of 400mg/kg b.w.t. The effect of tea on total blood proteins, Albumin, ZHX1, TBARS, AST, ALP and ALT were determined by spectrophotometric methods. The body weight of each rat was also determined at one week interval.

**Results:** Total Polyphenols (TP), Total Catechins (TC) and Antioxidant Activity (AA) between the black and green teas were significantly ($P<0.05$) different. Green tea had the highest levels of TP (19.70-26.12%), TC (8.51%-17.60%) and AA (86.65%-94.50%). Tea did not have a significant ($P>0.05$) effect on TP, ALB, ALT, AST, ALP, MDA and ZHX1 in the test animals compared with the controls. This data indicates that green tea is rich in catechins while black tea being rich in Theaflavins (TFs) and Thearubigins (TRs). Both tea products possess essential and non-essential metals well within the maximum permissible concentrations.

**Conclusions:** Findings from this study indicate both green and black tea aqueous extracts have polyphenols and high antioxidant activity. Administration of the aqueous tea extracts have no toxicological effect on the liver.