

P001 The antioxidant and metal chelating properties of MESNA
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Mesna (2-mercaptoethanesulphonate) is a thiol therapeutic agent for amelioration of cyclophosphamide – induced urotoxicity. This study evaluated the its antioxidant and metal chelating properties in comparison with bucellamine (BUC), a dithiol compound, trolox (water soluble vitamin E analogue), ascorbic acid and the physiological thiol, reduced glutathione (GSH). Mesna had low antioxidant capacity by the FRAP method (ferric reducing antioxidant power) in comparison with trolox, ascorbic acid and BUC but much higher than GSH. Mesna had low antioxidant activity as measured by the DPPH (2,2-diphenyl-1-picrylhydrazyl) method, IC_{50} 75 μ M while trolox had 20.5, ascorbic acid 20.8, BUC 18.5 and GSH had the lowest activity, IC_{50} of 800 μ M. However its copper chelating activity (cuprac assay) was similar to GSH (IC_{50} of 6.38 vs 5.83 $\times 10^{-5}$ M) but lower than trolox, ascorbic acid and BUC (IC_{50} 3.29, 3.05 and 3.29), respectively. Additional evidence for its copper chelating activity was shown by the spectral shift when mesna is introduced into a copper solution at pH 7.4. These results may suggest that mesna exerts its beneficial effect by scavenging transition metals, especially copper in oxidative stress.