



ABSTRACT

The present investigation was aimed to evaluate the comparative *in vitro* antioxidant and radical scavenging activity of various fractions of stem and leaves of *Martynia annua* L. The antioxidant components were initially extracted in methanol separately for stem and leaves using Soxhlet apparatus. These methanolic extracts of stem and leaves were subjected to the fractionation separately in solvents of different polarity. The comparative antioxidant potential and radical scavenging activities of these fractions were investigated using different antioxidant assays such as ferric reducing antioxidant power (FRAP), 2,2'-diphenyl-1-picrylhydrazil (DPPH) scavenging, total phenolic contents (TPC) and total antioxidant activity by phosphomolybdenum complex method. The results revealed that *n*-butanol soluble fraction of stem showed highest %scavenging of DPPH ($83.62 \pm 0.38\%$ at concentration of $250 \mu\text{g/ml}$) as compared to other studied fractions. The ethyl acetate soluble fraction of leaves also displayed good activity ($82.88 \pm 0.34\%$) nearly equal to it. However, the *n*-butanol soluble fraction of stem exhibited highest total antioxidant activity (0.187 ± 0.85), highest value of total phenolic contents ($278.32 \pm 0.73 \text{ mg/GAE}$) as well as highest FRAP value $149.00 \pm 0.56 \text{ mg/TE}$. So it was concluded that *n*-butanol soluble fraction of stem contains many antioxidant compounds. Similarly, the ethyl acetate soluble fraction of leaves is also a valuable source of antioxidants.