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Evaluation of antioxidant potential of 124 Egyptian plants with emphasis on the action of *Punica granatum* leaf extract on rats.

Abstract

There is currently an upsurge of interest in phytochemicals as a new source of natural antioxidants to be used in foods and pharmaceutical preparations to replace synthetic antioxidants, which are being restricted due to their potential health risks and toxicity. The chloroform and methanolic leaf extracts of 124 Egyptian plant species belonging to 56 families were investigated and compared for their antioxidant activity by DPPH scavenging assay. Among the 124 plant species tested, 18 exhibit extremely high antiradical activity (> 80% inhibition). The methanolic leaf extract of the promising plant species (18 plants) were further subjected to determine their IC₅₀ values and total phenolic and flavonoid contents. The IC₅₀ ranged from 18.68 to 30.97 µg/ml, while total phenolic and flavonoid contents ranged from 162.06±4.55 to 242.26±18.65 mg Tannic acid equivalent (TAE)/g extract and from 32.56±1.52 to 157.96±5.85 mg Rutin equivalent (RE)/g extract, respectively. Correlation coefficient (r) between the DPPH radical scavenging activity (IC₅₀) and the total phenolic and flavonoid contents (r=0.63 and 0.51, respectively) suggested that phenolics and flavonoids in the extracts were partly responsible for the antiradical activities. The edibility and safety limits of leaf methanolic extract of *Punica granatum*, which exerted the highest antioxidant activity was assessed by using experimental albino rats. The results indicated that this extract was edible and safe at concentration of 20, 40 and 60 ppm within 9 weeks.