Preliminary Phytochemical Screening, Quantitative Estimation of Total Flavonoids, Total Phenols and Antioxidant Activity of *Ephedra alata* Decne.

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Abstract

This study is designed to evaluate antioxidant activity, screen the existence of phytogenic chemical compounds and to determine the total flavonoid and phenol contents of the *Ephedra alata*, to prove its utilization in the Palestinian folk medicine for treatment of cancer. Total flavonoid contents of the plant were determined by using rutine reference standard method and total phenols determined by using Folin Ciocalteu method. The antioxidant activity was evaluated by using 2, 2-diphenyl-1-picryl-hydrazyl-hydrate assay. Phytochemical analyses indicated the presence of cardiac glycosides, reducing sugars, flavonoids, phenolic compounds and alkaloids. The total phenolic content in the ethanolic extract was 19.175 mg gallic acid while in the methanolic extract it was 47.62 mg gallic acid equivalent/g of extract powder.

The total flavonoid content of the plant was 0.519 mg RU/g in the aqueous extract and 5.44 mg RU/g in the ethanolic extract. The highest content was observed in the methanolic extract 54.66 mg RU/g.

In the same time the *E. alata* methanolic extract showed that it has high antioxidant activity and powerful oxygen free radical scavenging abilities. The IC50 for the plant was almost equivalent to the Trolox standard antioxidant which justified its uses in the Palestinian traditional medicines. It could be a good candidate for further biological and chemical analysis, and can be further subjected for isolation of the therapeutically active compounds with anticancer activity and also for further pharmacological evaluations.

***Keywords**: Ephedra alata* Decne, Phytochemical screening, Total flavonoids, Total phenols, Antioxidant.