Original Article

Auteology, Phytochemical and Antioxidant Activity of *Peganum harmala* L. Seed Extract in North of Iran (Tash Mountains)

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Abstract

*Peganum harmala* L. (Zygophyllaceae) is one of the most important medicinal plants had been used in traditional medicine in North of Iran as anti parasite, anti inflammation, anti tumor and anti infection. The aim of this study was to evaluate of ecological factors, ethno pharmacology and record of the relationship between secondary metabolites content and their antioxidant activity in seeds extract of plant. Ecological factors and ethnopharmacological data were obtained in many field observation. The seeds were collected in Tash Mountainous region (2750m) in August 2011, dried and were extracted by ethanol solvent. Total phenolic (TP) and total flavonoids (TF) content were determined by spectrophotometry method. Total antioxidant capacity (TAC), 1, 1-diphenyl-2-picrylhydrazyl (DPPH) free radical scavenging assay and reducing power assay (RP) methods were applied to measure antioxidant activity. Field observation showed that *Peganum harmala* is a perennial plant which can grow 30 to 70 cm tall, somewhere with annual average rainfall about 197mm, in sandy clay loam soil. Flowers appeared in mid to late of May and fruit maturation occurred in June to July. The results demonstrated that the TP was 61.55±0.84 mg GAE g⁻¹ and TF content 42.21±0.66 mg QUE g⁻¹. IC₅₀ was measured 53.64±0.5 mg/ml in DPPH 17.34±0.71 in TAC and 84.75±0.89 in RP method. Analyses of results showed a positive correlation between antioxidant activity and the most important secondary metabolites, which explains and confirmed the application of plant in traditional medicine as an antiseptic, anti-tumor and disinfectant agent.

Key words: *Peganum harmala* L., Aut ecology, Secondary metabolites, Antioxidant activity, Ethnopharmacology, Iran.