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# Bioactive Compound Contents and Biological Activities of the Algerian Medicinal Plant *Rhus Pentaphylla* (Jacq.) Desf. (Anacardiaceae) †

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**Abstract:** *Rhus pentaphylla* (Jacq.) Desf. is an Algerian food and medicinal specie used to treat diarrhea, abdominal colic and employed as digestive [1-3], yet there is little information available concerning their bioactive composition. The aim of this study was to quantify bioactive compounds and to investigate antioxidant and acetylcholinesterase inhibitory activities of extracts obtained from leaves of *R. pentaphylla*, in order to prove its possible use as potential natural source for human health. The bioactive compounds were quantified by colorimetric methods. The phytochemical analysis was carried out by chromatographic techniques. The antioxidant activity was assayed by using several test systems, namely total antioxidant capacity, DPPH, ABTS and OH radicals scavenging activity, ferric reducing power assay, ferrous ion chelating capacity and β-carotene bleaching assay. The acetylcholinesterase inhibitory activity was determined by bioautographic and spectrophotometric methods. The results showed that the extracts of *R. pentaphylla* are an excellent source of phenolic compounds especially regarding its high flavonoid and hydrolysable tannin contents (36.26 ± 1.77 mg CE/g DE and 898.64 ± 26.56 mg TAE/g DE, respectively) promoting high antioxidant activity. The phytochemical analysis led to the identification of several phenolic compounds that were dominated by flavonoids and phenolic acids. The extracts showed a potential antioxidant activity by the different tests. This could be attributed to their polyphenol, tannin and flavonoid contents. The extracts of *R. pentaphylla* also exhibited anti-acetylcholinesterase activity. Owing to its phenolic profile and biological activities, *R. pentaphylla* could be considered as potential functional-ingredient for pharmaceutical applications.

**Keywords:** Antioxidant activity; acetylcholinesterase inhibitory activity; *Rhus pentaphylla*; medicinal plant; phenolic compounds; chromatographic techniques

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