

# XXXV

Società Chimica  
Italiana



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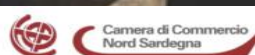
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# Convegno della Divisione di Chimica Organica

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## Phenolic Content and Radical Scavenging Properties of Natural Extracts for Traditional Care of Domestic Animals in Mediterranean Areas

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Extracts of plants traditionally used for treatments on animals were tested for total phenolic, non tannic phenolic, condensed tannins and total flavonoid content. Antioxidant properties were determined using 2,2'-azinobis (3-ethylbenzothiazoline-6-sulphonic acid) diammonium salt (ABTS) and 1,1-diphenyl-2-picrylhydrazyl (DPPH) chemical assays following DMSO extraction. We also assessed the toxicity of extracts on cell viability and determined their ability to modulate the production of intracellular reactive oxygen species. Endothelial cells and undifferentiated human promyelocytic leukemia cell-line were employed to assess antioxidant activity and cytotoxicity of extracts. The same extracts used for the cell based and chemical assay and for the assessment of total phenolic and flavonoid content, allowed us to evaluate (I) the relation between phenolics and antioxidant capacity (II) to compare chemical and biological assays, and (III) to determine the compliance between chemical data and cell-culture data. Antioxidant capacity and total phenolic content were significantly related ( $R^2 = 0.9277$ ) in ABTS and ( $R^2 = 0.9493$ ) in DPPH assay. *Pistacia lentiscus* was among the species showing higher antioxidant capacity in both chemical and biological experiments. *Cistus creticus* and *Euphorbia characias* showed almost no activity in cells despite their high activity in the chemical assays. To explain the opposite trend shown sometimes by extracts in the chemical and biological tests, Prior et al. (2005) suggest that a compound can reduce ABTS+ if it has a redox potential lower than that of ABTS. Many phenolic compounds have low redox potentials and can thus react with ABTS+, also, many antioxidants that react quickly with peroxy radicals may react slowly or may even be inert to DPPH due to steric inaccessibility. Results provide useful information about the potential of extracts related to traditional animal care.

(1) Prior, RL; Wu, XL; Schaich, K. *J. Agr. Food Chem.* **2005**, 53, 4290-4302.