



Bioactive Components of Caper (*Capparis spinosa* L.) from Sicily and Antioxidant Effects in a Red Meat Simulated Gastric Digestion

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Abstract: An increasing body of evidence on the association between adherence to the Mediterranean diet and healthy status is being accumulated. Floral buds of *Capparis spinosa* L. are commonly used in the Mediterranean cuisine as flavoring for meat and other foods. The present study evaluated bioactive components and antioxidant activity of Sicilian capers stabilized in salt. Whereas α -tocopherol was absent, low levels of γ -tocopherol and vitamin C were measured. With reference to one serving size (8.6 g of capers), rutin was 13.76 mg, isothiocyanates, recently acknowledged as anticarcinogen phytochemicals, were 42.14 μ mol, total phenols were 4.19 mg of gallic acid equivalents (GAE), and the total antioxidant potential measured using the [2,2'-azinobis(3-ethylbenzothiazoline-6-sulfonic acid)] diammonium salt (ABTS) cation radical decolorization assay was 25.8 μ mol of Trolox equivalents. The antioxidative activity of a caper hydrophilic extract was assessed in a number of assays. The extract at 3.5 and 7.0 μ M GAE exhibited a dose-dependent peroxy radical scavenging activity in a methyl linoleate methanol solution oxidized by azo initiator, and reduced hypervalent iron myoglobin species formed from met-Mb and H_2O_2 , at 180 μ M GAE. The hydrophilic extract, at 70–280 μ M GAE, caused a dose-dependent inhibition of lipid autoxidation in heated red meat, incubated with simulated gastric fluid for 180 min. In the same model rutin tested at a concentration corresponding to its content in the extract was ineffective, and α -tocopherol at 25 μ M was poorly effective. The hydrophilic extract (70 μ M GAE) prevented the consumption of the co-incubated α -tocopherol, whereas lipid oxidation was inhibited for the experimental time, suggesting cooperative interactions between extract components and the vitamin. The findings encourage the use of caper with foods that contribute oxidizable lipids in view of the association between dietary oxidized lipids and risk of oxidative stress-based diseases.

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