

Analyzing the mechanisms of antioxidant action of persimmon fruit aqueous extracts

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It is has been reported persimmon (kaki) fruit extracts have antioxidant activity. None of these works have investigated the mechanisms of antioxidant activity. We have recently observed that kaki aqueous extracts (from pulp) inhibited 2-deoxyribose (2-DR) degradation and lipid peroxidation (LP) induced by Fe(III) and ascorbate (SBBq-2008, abstract T-60). This study was done analyzing 20 individual fruits. In the present work we report relevant differences in the inhibitory action of individual fruit extracts in iron-mediated LP and 2-DR degradation. However a significant correlation was found for the effect of individual fruits in 2-DR damage and LP ($R^2=0.217$, $p=0.038$). In addition, in the previous work we suggested that the antioxidant action of the extracts against 2-DR degradation was due to an iron chelating property of its compounds. However, our present results contradict this previous conclusion any a number of reasons. Firstly, in experiments using Fe(III)-EDTA plus ascorbate, an increase of EDTA concentration in the media did not cause a decrease in the antioxidant efficiency of extracts - which is usually observed with chelating molecules with antioxidant activity – such as tannic acid, or Desferal. Secondly, the increase in pre-incubation time of media containing extracts plus iron (without ascorbate) caused no effect on the antioxidant efficiency of extracts, suggesting a scavenger activity. Finally, the increase in 2-DR concentration in the media (5 to 20 mM) caused a relevant drop in the antioxidant efficacy of extracts. Such result is not consistent with a “chelator explanation” for the antioxidant behavior of kaki extracts. Therefore, we suggest that kaki extracts present a relevant OH-scavenger activity in aqueous media. **Acknowledgments:** A.C. Lopes, I.G.J. Avellar, CNPq. **Keywords:** Kaki, antioxidant, iron, peroxidation