ANTIOXIDANT AND ANTIMICROBIAL EFFECT OF STRAWBERRY TREE FRUIT WATER EXTRACT

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Strawberry tree (Arbutus unedo L.) fruit is widely distributed in the Mediterranean region. The fruit, because of its rich content of polyphenols, pectin and other polysaccharides is getting more interesting for functional food production. In local agricultural communities, this sweet but not very aromatic fruit is used for jams, marmalades and alcoholic beverages preparation. In this work, antioxidant and antimicrobial properties of strawberry tree fruit was investigated. For this purpose, cytotoxic and prooxidative/antioxidative effect of different concentrations of water extracts was determined (0.01-100 mg/mL, where 1 mg/mL and 10 mg/mL represented the recommended daily doses of polyphenols based on an average human weight and human blood volume, respectively). Human tongue carcinoma cells (CAL 27), colorectal adenocarcinoma cell line (Caco-2) and hepatocellular carcinoma cell line (HepG2) were used as biological test system. Protective role against hydroxyl radicals was determined on supercoiled plasmid model (?X-174 RF I). Antimicrobial activity against Staphylococcus aureus and Lactobacillus fermentum was also determined. Strawberry tree fruits, in the recommended daily doses, showed a proliferative effect on CAL 27 cells without and with 24-hour cell recovery, respectively. Antioxidant activity in CAL 27 cells was proven after 24-hour cell recovery, while prooxidative effect of A. unedo fruit has been shown in Caco-2 and HepG2 cells. It inhibited DNA damage caused by hydroxyl radicals in dose-dependent manner. This extract has shown antimicrobial activity against S. aureus, while it did not influence on L. fermentum survival. Further investigations are nedded to determine A. unedo fruit extract antioxidative potential.
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