



Abstract

Nutritional Composition and Biological Activity of Goldenberry (*Physalis peruviana* L.): An Emerging Fruit Crop in Portugal [†]

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Abstract: European consumers have a growing interest in new fruits and flavours, which has promoted the production and commercialisation of exotic fruits such as goldenberry (*Physalis peruviana* L., Fam. Solanaceae). Colombia and South Africa are currently the main producers of this fruit, but it can be cultivated in almost all the highlands of the tropics and in several parts of the subtropics, given its ability to adapt to a wide range of agroecological conditions [1]. Consumer demand for this small orange berry has also been driven by its nutritional value and health-promoting effects [2]. Although there have been different studies about this fruit, the available information is still scarce. Furthermore, the fruit quality attributes can vary depending on the agricultural practices used and the edaphoclimatic conditions of the growing sites. Therefore, this study was carried out to evaluate the nutritional composition and in vitro antioxidant and antimicrobial activity of goldenberry cultivated in the northeast region of Portugal. Goldenberry samples were lyophilised and analysed to determine their proximate composition (moisture, protein, fat, ash, dietary fibre, and carbohydrates), following official methods of food analysis [3]. Their profiles of sugars, organic acids, fatty acids, and tocopherols were characterised by standardised chromatographic methods [3]. The powdered goldenberry sample was also prepared in a hydroethanolic extract used for the evaluation of antioxidant activity (by oxidative haemolysis and lipid peroxidation inhibition assays) and antimicrobial effects against foodborne bacteria and fungi (by serial microdilution methods) [3]. The nutritional analysis revealed high levels of carbohydrates (mainly fructose and glucose) and fibre and a lipid fraction consisting mainly of polyunsaturated fatty acids. Citric and ascorbic acids were detected in high amounts, as well as the four tocopherol isoforms. The hydroethanolic berry extract showed capacity for inhibiting haemolytic oxidation and lipid peroxidation, antibacterial effects against *Staphylococcus aureus* and *Bacillus cereus*, and antifungal activity against *Aspergillus* and *Penicillium* strains. Overall, this work highlighted the nutritional value of goldenberry, which has been noted as a functional fruit with a growing presence in the Portuguese market.

Keywords: nutritional value; functional food; sugars/acids; tocopherols; antioxidant activity; antimicrobial activity

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