

Title Characterization of phenolic acids and flavonoids in leaves, stems, bracts and edible parts of globe artichokes

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Abstract

Since Roman times, the globe artichoke has been considered as a tasty vegetable with beneficial effects on human health. Nowadays, many studies have demonstrated that its health-promoting properties are related to the polyphenolic compounds present in the inflorescences (heads) and leaves. The aim of the present study was to evaluate the influence of cultivar and plant part on polyphenol content and profile. Field experiments were conducted on the Catania Plain (Sicily), a typical area for globe artichoke cultivation in Italy, utilizing three cultivars: ‘Violetto di Sicilia’, ‘Tondo di Paestum’ and ‘Blanc Hyérois’. Our results show that a single class of polyphenols accumulated preferentially in specific parts of plants and their amount varied among cultivars. In particular, the leaves contained either the highest total measured polyphenols (TMP) content and flavonoid level (457.7 nmol/g of dry matter and 95% of the TMP, respectively), while the caffeoylquinic acids were more abundant in the floral stem (86% of the TMP). Concerning cultivars, ‘Violetto di Sicilia’ reached the highest polyphenol concentration in each head fraction, except in the receptacle. In contrast, the TMP for the receptacle was higher in ‘Tondo di Paestum’