Title: Evolution of Hydroxytyrosol, Hydroxytyrosol 4-β-d-Glucoside, 3,4-Dihydroxyphenylglycol and Tyrosol in Olive Oil Solid Waste or "Alperujo"

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The main by-product generated from the olive oil two-phase extraction system, or alperujo, is undoubtedly a rich source of bioactive components, among which phenolics are one of the most important. The evolution of four of its main phenolics: hydroxytyrosol (HT), hydroxytyrosol 4-β-d-glucoside (Glu-HT), 3,4-dihydroxyphenylglycol (DHPG) and tyrosol (Ty) was studied over two seasons and in ten oil mills under similar climatological and agronomic conditions, for the first time using organic extraction and high-performance liquid chromatography (HPLC-DAD) determination. The results show that HT (200–1600 mg/kg of fresh alperujo) and Ty (10–570 mg/kg) increase, while DHPG (10–370 mg/kg) decreases only in the last month of the season and Glu-HT (1400–0 mg/kg) decreases drastically from the beginning. This evolution is similar between different seasons, with a high correlation between Glu-HT, HT, and Ty. On the other hand, it has been verified that a mixture of alperujos from all the oil mills, which is what the pomace extractor receives, is a viable source of a liquid fraction which is rich in the phenolics studied through organic extractions and especially after the application of a thermal treatment, obtaining values of 4.2 g/L of HT, 0.36 g/L of DHPG, and 0.49 g/L of Ty in the final concentrated liquid fraction. It is remarkable the importance of these compounds for their high biological activity for both human and environmental health, as they have phyto-regulatory character to improve the growth of cultivated plants and inhibiting the development of weeds.

Biography

África Fernández-Prior has a degree in Chemical Sciences and a PhD in Chemical Sciences (Pablo de Olavide University, Spain) and postdoctoral studies at the Faculty of Medicine of the University of Seville. Her research career has focused on the revalorization of by-products from the agri-food industry, mainly from the olive oil industry, as well as on the recovery and study of the bioactivity of compounds of high interest such as phenols and polysaccharides. She has participated in more than 20 research projects and has more than 50 high impact scientific articles, more than 30 contributions to congresses, 2 patents of invention as well as being partner promoter of a Technology Based Company.

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