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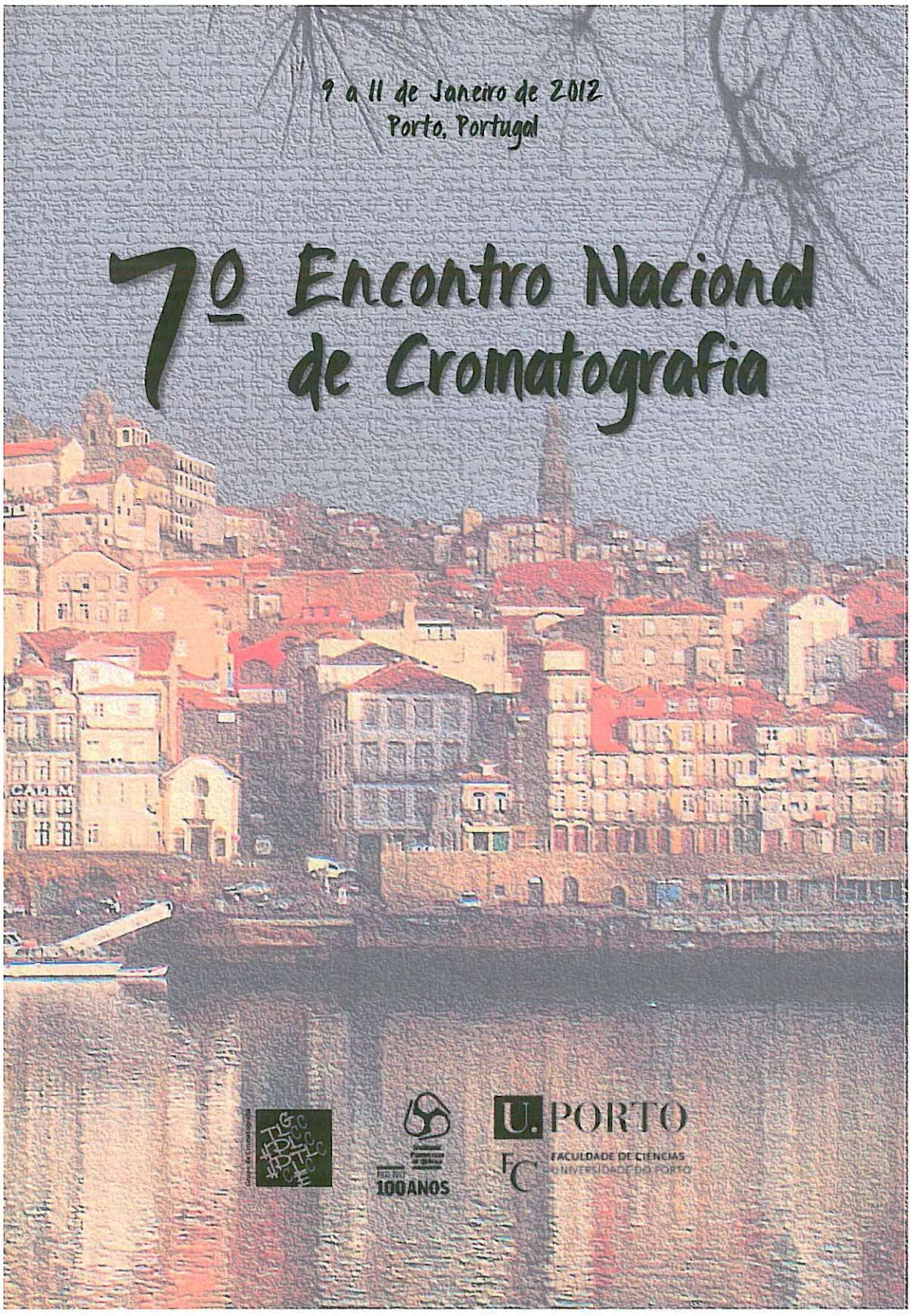

Grupo de Cromatografia

100 ANOS

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CO15. Lipophilic and hydrophilic antioxidants from *in vivo* and *in vitro* grown *Coriandrum sativum* L.: chromatographic analysis

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Coriander is commonly used for medicinal purposes, food applications, cosmetics and perfumes. It is a source of a variety of polyphenols and other phytochemicals, related to its high antioxidant activity. The plant cell culture technique was applied to the production of coriander, and a detailed analysis of lipophilic and hydrophilic antioxidants was carried out in *in vivo* and *in vitro* grown samples. *In vivo* grown samples were vegetative parts and seeds obtained in a local supermarket. *In vitro* grown samples were two clones differentiated after 6 months in culture: clone A with a notorious purple pigmentation on vegetative parts and clone B -just green [1,2]. Tocopherols, sugars and phenolic compounds (phenolic acids, flavonoids and anthocyanins) were identified and quantified by HPLC coupled to different detectors (fluorescence, RI, DAD and MS). The antioxidant activity was also evaluated by free radical scavenging activity, reducing power and lipid peroxidation inhibition in brain cells homogenates. The *in vivo* vegetative parts showed the highest antioxidant activity mainly due to its highest levels of hydrophilic compounds; quercetin-3-*O*-rutinoside was the main polyphenol. *In vivo* seeds revealed only phenolic acids and derivatives. In *vitro* samples also gave promising antioxidant activity and a high diversity of polyphenols, being *C*-glycosylated apigenin the main compound. Anthocyanins were only found in clone A, which is certainly related to its purple pigmentation. *In vitro* samples, mainly clone A, gave the highest concentration in lipophilic compounds but a different profile when compared to the *in vivo* sample. Clones A and B revealed a lack of β- and δ-tocopherols, a decrease in α-tocopherol, and an increase in γ-tocopherol. *In vitro* culture might be useful to explore the plants potentialities for industrial applications, controlling growth conditions to produce bioactive products.

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[2] L Barros, MI Dias, M Dueñas, MJ Sousa, C Santos-Buelga, ICFR Ferreira, Food Chem, in press.