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Effect of the encapsulation on the phenolic composition and the antioxidant activity of *Pallenis spinosa* during the simulated gastrointestinal digestion

Boulekbache Makhlouf L[1], Hanane Amrani Allalou[1,2], Izzo L[2], Madani K[1] and **Tenore G C[2]**
[1]University of Bejaia, Algeria
[2]University of Naples Federico II, Italy

Pallenis spinosa (L.) Cass. belong to the family of Asteraceae, widely distributed throughout the Mediterranean area. This plant is used in folk medicine as curative or preventive remedies for various diseases. In this work, we investigated the effect of the encapsulated extracts on the phenolic compounds and the antioxidant activity of *Pallenis spinosa* in the simulated gastrointestinal digestion. Folin-Ciocalteu Reagent was used for the determination of the total phenolic content in different parts of *Pallenis spinosa*, HPLC-DAD method was used for the characterization of the individual compounds, the antioxidant effect was evaluated by using three different assays (DPPH, ABTS and FRAP assays) and the encapsulation of phenolic compounds extracts was made with hydroxypropylmethyl cellulose. The phenolic compounds from *Pallenis spinosa* were significantly altered during the gastro-intestinal digestion. The encapsulation of different extracts induced their substantial protection namely ferrulic, gallic and chlorogenic acids, kaempferol, gallocatechin gallate, catechin and Kaemferol-3-glucoside. These effects were more pronounced on the major phenolic compounds (ferulic, gallic and chlorogenic acids) and antioxidant capacity. The activity of the phenolic compounds from *P. spinosa* became higher during the *in vitro* digestion with the encapsulated extracts.

Biography

Boulekbache Makhlouf L has expertise in the extraction, characterization and evaluation of the biological activities of natural substances for their use in the food and pharmaceutical industries. She is a Team Leader in the research laboratory: Laboratory of Biomathematics, Biophysics, Biochemistry, and Scientometry (L3BS) at the University of Bejaia in Algeria and responsible of the doctoral training: Bio-resources, Environment and Technology Agro-food.

lilaboulekbachemakhlouf@yahoo.fr

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