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Mushroom extracts as viable sources of bioactive compounds for food applications

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The incorporation of mushroom extracts in food matrices configures an example of functional foods/nutraceuticals development. They are recognized as having anti-inflammatory, antitumor, antibacterial and antioxidant properties allowing the obtaining of health benefits, including disease prevention [1]. However, these extracts can present instability at high temperatures, presence of oxygen and light. Moreover, they are generally characterized by a strong odour and flavour.

In this work, alcoholic extracts of two mushrooms species, *Suillus luteus* (Sl) and *Coprinopsis atramentaria* (Ca), were studied for their antioxidant effect and their viability as functional food ingredients tested by incorporation into a food matrix (cottage cheese). In a first step, the individual extracts and a combination of both showing synergistic effects (Sl:Ca, 1:1) were microencapsulated by *spray drying* using maltodextrin as the encapsulating material [2]. After evaluating the antioxidant properties of the microencapsulated extracts and confirmation of their maintenance, comparatively to the corresponding free extract forms, the work proceeded with the incorporation of the microencapsulated and free forms into the cottage cheese. The incorporation of free extracts resulted in products with higher initial antioxidant activity (t=0 days) but declining for t=7 days, which can be associated with their degradation. However, the cottage cheese enriched with the microencapsulated extracts, that have revelled a lower activity at initial time, showed for t=7 days an increase. This improvement can be explained by an effective protection provided by the microspheres together with a sustained release. Analyses performed on the studied cottage cheese samples showed the maintenance of the nutritional properties.

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