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Shiitake mushroom (*Lentinola edodes*) spread creams

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This work is part of Agrio et Emulsio project (POCI-01-0145-FEDER-023583), the main goal is formulating and design an innovative food emulsion based on processed *Shiitake* mushroom (*Lentinula edodes*), through sustainable methodologies with potential application in certain markets such as gourmet, diet and vegan [1].

Shiitake mushroom is a fungus of the *phylum Basidiomycota* and *Lentinus* gender. It is the second most cultivated edible mushroom in the world, currently accounting for around 25% of world production of edible mushrooms. Its importance nowadays, due to lifestyles and habits from Asian countries. It is considered a high-quality food with high content of protein, vitamins and minerals and low content in calories and fat [2].

An emulsion is a multiphase system consisting of two immiscible phases, one aqueous phase and a lipid phase, in which one phase is dispersed in another in the form of spherical drops. System stability depends on the membrane that holds the drops and varies over time. Spreads creams are water-in-oil emulsions which lipid phase is a mixture of vegetable oils and / or oils and animal fats, containing natural colorants, stabilizers, emulsifiers, flavourings, antioxidants, lecithin and liposoluble vitamins. The aqueous phase comprises skimmed milk proteins, and small amounts of other ingredients such as salt, preservatives, thickeners and water-soluble vitamins [3].

The methodology involved the experimental technological development. There were performed microbiological assays, proximal and physicochemical and sensory analysis. The aqueous phases were pasteurized for obtaining ideal binomial time / temperature confirmed by microbiological analysis.

Two final prototypes were selected, one of them vegan with aqueous phase of vegetal origin, and another lacto-vegetarian with aqueous phase of animal origin, whey protein concentrate of goat's milk. After this the prototypes were produced for stability tests, as well as physicochemical, proximal, rheological and organoleptic characterization.

Microbiological stability tests, proximal and physicochemical analysis, as well as food pairing and food design tests are carried out.

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