

New Applications of Essential Oils: Edible Packaging Material for Food Supplements

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Abstract : Environmental pollution due to non-degradation of packaging from the food and pharmaceutical industry is reaching increasingly alarming levels. The packaging used for food supplements is usually composed of successive layers of synthetic materials, conventional, glue, and paint. The situation is becoming more and more problematic as the population, according to statistics, uses food supplements more and more often. The solution can be represented by edible packaging, completely biodegradable, and compostable. The tested materials were obtained from biopolymers, agar, carrageenan, and alginate, in well-established quantities and plasticized with glycerol. Rosemary, thyme, and oregano essential oils have been added in varying proportions. The obtained films are completely water-soluble in hot liquids (with a temperature of about 80° C) and can be consumed with the product contained. The films were glossy, pleasant to the touch, thin (thicknesses between 32.8 and 52.8 μm), transparent, and with a pleasant smell, specific to the added essential oil. Tested for microbial evaluation, none of the films indicated the presence of *E. coli*, *S. aureus*, enterobacteria, coliform bacteria, yeasts, or molds. This aspect can also be helped by the low values of the water activity index (located between 0.546 and 0.576). The mechanical properties indicated that the material became more resistant with the addition of essential oil, the best values being recorded by the addition of oregano. The results obtained indicate the possibility of using biopolymer-based films with the addition of rosemary, thyme, and oregano essential oil, for wrapping food supplements, thus replacing conventional packaging, multilayer, impossible to sort and recycle.

Keywords : edible films, food supplements, oregano, rosemary, thyme

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