Abstract

Introduction. The studies about natural additives obtained through commercially, environmentally and nutritionally competitive technologies applied to alimentary matrices, are necessary to offer new alternatives to the industry that respond to the consumption trends of natural and healthy products. Therefore, obtaining a natural dye from paprika's oleoresin (POR) extracted at a semi-industrial scale with supercritical fluids (SCF) and microencapsulated by spray-drying to be applied to a meat sausage, is an option for the industry of food additives that must be evaluated for its future offer in markets worldwide. Objective. Evaluate the effectiveness of the coloring capacity on a sausage of the POR obtained by SCF, and compare it with the capacity of the POR microencapsulated by spray-drying. Methodology. The extraction by SCF-CO₂ at a semi industrial scale was performed at 350 bar and 60°C. The POR obtained was characterized by its ASTA degrees and by the presence of β,α-carotenes identified by HPLC. In the microencapsulation, the drying conditions were: Tinput: 180°C±2°C, Toutput: 90°C±5°C. The relationship oleoresin/encapsulant was 1:10, with a mixture of modified starch and maltodextrin (75:25). The microcapsules were characterized with the study of their stability and SEM. The effectiveness of the coloring capacity between the POR and the microcapsules on a sausage was evaluated with a DigiEyesystem and the differences were evaluated by the comparison with a commercial POR, with a two factors variance analysis. Results. The POR had an ASTA value of 716,3±5 and the extraction yield was 14.6±0.9, with a β,α-carotene profile above the one obtained with the cayenne. The microcapsules, with sizes between 11 and 21 m, were more stable. The change of color in the sausage, according to the reference pattern, was lower in the product made with POR extracted by SCF than it was in that of the microencapsulated POR. Conclusion. The use of the extraction with SCF and the microencapsulation at a semi industrial scale is useful to have a product free of organic solvents and with a longer life. Besides, during its application on a stuffed meat product, a higher proportion of POR microencapsulated is required to obtain the same coloring capacity the POR has under the industrial conditions used nowadays.

Keywords

Supercritical fluids. Spray drying, capsicum annum L., ASTA degrees.