OXIDATIVE STABILITY AND SENSORY EVALUATION OF FLAXSEED OIL MICROENCAPSULATED PRODUCED BY SPRAY DRYING


Microencapsulation of vegetable oils rich in polyunsaturated fatty acids is an alternative method applied to protect from oxidation, to increase shelf life, to mask flavor and also facilitate the manipulation of those vegetable oils. The aim of this study was to produce microcapsules of linseed oil and evaluate their stability and sensorial profile. The microencapsulation was carried out by atomization spray-drying prepared with an emulsion containing 15% of total solids, using 66% modified starch capsul®. The lipid composition and the oil retention of the microcapsules were analyzed by high resolution gas chromatography (HRGC) and the stability of the oil and of the microcapsules by quantification of conjugated dienes and volatile acid (Racimat®). In order to verify the sensorial profile, microcapsules of linseed oil were added to a commercial nutritional supplement powder with chocolate flavor in a proportion of 20%. The acceptance test used was structured the 9-point hedonic scale for three attributes (overall appearance, flavor and aroma), with a group of 60 untrained assessors. The yield was 54.8% and oil retention of the microcapsules was 90.9%. The difference between the levels of unsaturated fatty acids before and after microencapsulation was not significant. The microcapsules packed under vacuum conditions showed less susceptibility to formation of volatile compounds and a better oxidative stability. Sensorial evaluation showed that the addition of the microcapsules, the scores obtained were above 5.0 for all attributes, indicating that microencapsulated linseed oil can be added to this type of food, in order to improve the nutritional quality of the food.