CHARACTERIZATION AND STABILITY OF LIPID MICROPARTICLES PRODUCED WITH BABACU OIL


Due to their possible action as functional lipids, medium chain triacylglycerides (MCT) has been received considerable attention in recent research studies. As lauric acids are the best source of these substances, in this study the addition of babacu oil in lipid microparticles (LM) was investigated. LM were produced with mixtures of stearic acid and babacu oil (30 to 90% of babacu oil, stabilized with mixtures of polysorbate 20 and sorbitan estermonooleate, Span 80), and characterized in terms of hydrodynamic diameter, zeta potential, crystalline structure and thermal behavior. Two populations (average diameters 300 and 1500 nm) were formed, with zeta potential between below -10 mV. When stored under refrigeration, the LM presented excellent stability over a storage period of 45 days. Thermograms and X-ray diffractograms showed the structure of LMs, in all cases, were completely amorphous. When submitted to different salt concentrations (from 0.025 to 1 M), the systems were not stable, and the same occurred when different concentrations of sucrose were added to the emulsions. All formulations of microparticles were stable when submitted to temperatures of 45 and 75 °C for 15 minutes. The same occurred when they were tested in acid values of pH. Tests of stability at pH of 8.0 showed, however, they were seriously destabilized in this condition. The results obtained in this investigation showed it was possible to produce solid lipid microparticles with mixtures of stearic acid and babacu oil with long shelf-life, and that they can be added to a variety of food formulations.