

Characterization of rice bran wax policosanol and its nanoemulsion formulation

ABSTRACT

Policosanol, a mixture of long-chain alcohols found in animal and plant waxes, has several biological effects; however, it has a bioavailability of less than 10%. Therefore, there is a need to improve its bioavailability, and one of the ways of doing this is by nanoemulsion formulation. Different droplet size distributions are usually achieved when emulsions are formed, which solely depends on the preparation method used. Mostly, emulsions are intended for better delivery with maintenance of the characteristics and properties of the leading components. In this study, policosanol was extracted from rice bran wax, its composition was determined by gas chromatography mass spectrophotometry, nanoemulsion was made, and the physical stability characteristics were determined. The results showed that policosanol nanoemulsion has a nanosize particle distribution below 100 nm (92.56–94.52 nm), with optimum charge distribution (-55.8 to -45.12 mV), pH (6.79–6.92) and refractive index (1.50); these were monitored and found to be stable for 8 weeks. The stability of policosanol nanoemulsion confers the potential to withstand long storage times.

Keyword: Rice bran wax; Policosanol; Nanoemulsion; Characterization