Optimal operating conditions of spray dried noni fruit extract using K{green}-carrageenan as adjuvant

Abstract

A detailed study was conducted using lab scale spray dryer to produce micro particles using K{green}-carrageenan (1 wt.%) as the encapsulation or binding agent by different ratio, Mcore/Mwall (1:1, 1:2, 1:4 and 1:6) at different temperature (90, 100, 120 and 140°C). The concentrated noni extract and spray dried noni micro particles were analyzed for encapsulation yield, DPPH scavenging activity, total phenolic content and particle size analysis. From the results it was clear that percentage of DPPH scavenging activity and total phenolic content was slightly higher for 1:6 at 90°C than 1:2 at 90°C. However, 1:2 at 90°C was concluded as optimal operating conditions. By particle size analyzer it was found that at optimal operating spray drying condition, the mean diameter of the particle was varied from 2.53 to 2.27 μm, which is found to be less when compared to all the other ratios at different temperatures.