

Partial discharge characteristics with morphological analysis and tensile properties of linear low-density polyethylene-natural rubber blends

Abstract

Hot water extract of *Morinda citrifolia* L. fruit was spray dried using K-carrageenan (1 wt%). Spray drying was carried out according to D-optimal design and independent variables selected were temperature and $M_{\text{core}}/M_{\text{wall}}$. Spray drying process was optimized by using Response Surface Methodology (RSM) for four different responses such as moisture content, DPPH scavenging activity, Total Phenolic Content (TPC) and Total Flavonoid (TF). Effects of temperature and ratio of core to wall material found to be significant on all responses. Applying desirability function method, optimal spray drying condition for K-carrageenan as binding material were found to be 1:1.5 ($M_{\text{core}}/M_{\text{wall}}$) at 90°C. Experimental value of response variables match well with the predicted values. The nanoparticles obtained in this study represent an interesting food additive for incorporation into functional foods due to presence of antioxidants.