Changes of phytosterols, rheology, antioxidant activity and emulsion stability of salad dressing with cocoa butter during storage

ABSTRACT

Addition of phytosterols and antioxidants to food may provide additional health benefits to consumers. Their stability in a food matrix may decrease during storage. Therefore, the objectives of this study are to formulate a salad dressing with cocoa butter and determine its phytosterol stability, antioxidant activity and physicochemical properties during storage. The cocoa butter was extracted using a supercritical CO2 extraction (green technology) and added to the formulated salad dressing (containing different ratios of cocoa butter and soybean oil). The salad dressing with 30 % cocoa butter (the most stable emulsion) was selected for storage study at 4 and 30 °C. However, values of physicochemical parameters and mass fractions of phytosterols, total phenolic compounds (determined using Folin-Ciocalteu reagent) and 2,2-diphenyl-1-picrylhydrazyl (DPPH) in the salad dressing with 30 % cocoa butter decreased during storage (from day 0 to 28) and increased with the temperature increase, probably due to the oxidation of oil. Thus, the most desirable storage temperature for salad dressing was 4 °C. An excellent stability of the salad dressing with 30 % cocoa butter at different storage temperatures for 28 days offers a potential application in food industries for production of salad dressing with cocoa butter enriched with phytosterols.

Keyword: Phytosterols; Antioxidant activity; Cocoa butter; Salad dressing; Soybean oil; Physicochemical characteristics