Effects of temperatures on rheological behavior of dragon fruit (Hylocereus sp.) juice

ABSTRACT

In Malaysia, the dragon fruit is widely commercialized. It is extensively used in the food industry. Their use as constituents of juices, jellies, marmalades, jams, wine, beverages, etc. generates a consumer market with an increasing demand. This work aims to obtain rheological data of dragon fruit juice which is essential in optimizing equipment design, process control, and consumer acceptability of a product. In the present study, dragon fruit juice with concentrates of (10 and 12oBrix) was prepared. The rheological behavior of these concentrates was studied in the temperature range of 5, 10, 15, and 40°C. Dragon fruit juice was found to exhibit non-Newtonian, pseudoplastic behavior. Samples on both concentrations were adequately described by the rheological model. The effect of temperature on dragon fruit juice is best described by the applicability of the Arrhenius model related to apparent viscosity, ɖa.

Keyword: Rheology; Pseudoplastic; Dragon fruit; Viscosity; Master curve; Models; Non-Newtonian