

## **CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Dielectric Properties**

This work studied the effects of soluble solids content (10, 15, 20 and 25 °Brix) and temperature (40, 50, 60, 70 and 80 °C) on dielectric properties, i.e., dielectric constant and dielectric loss factor of papaya puree at both microwave frequencies of 915 and 2450 MHz using the open-ended coaxial probe method. Results show that dielectric constant of papaya puree decreased with increasing soluble solids content and increasing temperature at 915 and 2450 MHz. Dielectric loss factor increased with increasing soluble solids content and increasing temperature at 915 MHz while it decreased with decreasing soluble solids content and increasing temperature at 2450 MHz. The empirical models of dielectric properties, i.e., dielectric constant and dielectric loss factor at both microwave frequencies of 915 and 2450 were obtained.

### **5.2 Rheological Properties**

The effects of soluble solids content (10, 15, 20 and 25 °Brix) and temperature (40, 50, 60, 70 and 80 °C) on the flow properties of papaya puree were examined using a rotational concentric cylinder viscometer. It was found that that apparent viscosity of papaya puree increased with soluble solids content and decreased with temperature. After eliminating time dependency, papaya puree exhibited a pseudoplastic flow with a yield stress. The Herschel-Bulkley model was applied to describe the flow behavior of papaya puree. The relationship between apparent viscosity and temperature was well described by Arrhenius equation. The empirical model for apparent viscosity as a function of soluble solids content and temperature was obtained.