

Microwave technique for moisture content and pH determination during pre- harvest of mango cv. Chok Anan

ABSTRACT

The maturity of mango is usually assessed by the determination of its moisture content (m.c.), soluble solid content (SSC) and pH. However, these techniques are either time consuming, tedious or destructive. In this research, we extend the application of the open-ended coaxial probe technique to determine m.c. and pH of Chok Anan mango from its dielectric properties from week 5 to week 17 after anthesis. The effects of frequency and m.c. on the values of the dielectric constant and loss factor were also investigated. The critical frequency separating the different polarizations was found to be inversely proportional to m.c. Also, in this research we proposed a new classification of fruit ripeness related to the number of weeks after anthesis. The actual dielectric properties, m.c., SSC and pH of Chok Anan mango were measured using standard methods. Relationships were established between the dielectric constant, loss factor, critical frequency, pH and m.c. The accuracy for the determination of m.c. and pH using the coaxial probe was within 1.7% and 3.0%, respectively.

Keyword: Dielectric; Loss factor; Moisture content; Open-ended coaxial probe; pH