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Appendix A

Proximate Analysis of Papaya Puree

Proximate Analysis

The compositions of papaya puree were determined using proximate analysis for receiving moisture content (AOAC, 1995), Protein (AOAC, 1995), fat (AOAC, 1995), Ash (AOAC, 1995), crude fiber (AOAC, 1995), acidity (AOAC, 1995) and carbohydrate.

- The moisture content was determined by gravimetric method and calculated as follows:

$$\%\ moisture = \left(\frac{W_3 - W_2}{W_2 - W_1}\right) \times 100$$

Where W_1 = weight of empty moisture can

W_2 = weight of can before drying

W_3 = weight of can and sample after drying to a constant weight

- The protein content was determined by Kjeldahl method. The total nitrogen was determined and multiplied with the factor 6.25 to obtain the protein as follows:

Equal wt of $W_2 = 14$, let the titration value be x ml

1ml of 0.02N $H_2SO_4 = 14 \times 0.02$MgN

1ml of 0.2N $H_2SO_4 = 14 \times 0.28$MgN

This was contained in 1ml digest if 50ml digest will contain 0.28×50MgN

This was contained in 0.2g sample

$$N\ (\%) = \left(\frac{0.28 \times 50x}{10}\right) \times \frac{1}{103} \times \frac{100}{0.2}$$

$$N\ (\%) = 0.7\ x$$

$$\%\ \text{crude protein} = 0.7x \times 6.25$$

- The crude fiber was determined by the Weende method and calculated gravimetrically as % crude fiber as follows:

$$Clude\ fiber = \left(\frac{W_2 - W_3}{Wt\ of\ sample}\right) \times 100$$

Where W_2 = weight of crucible, sample after washing and drying in oven.

W_3 = Weight of crucible and sample as ash

Wt = Weight of sample

- The total ash was done using the furnace incineration gravimetric method (AOAC, 1995) and the weight of ash obtained in percentage as follows:

$$Ash\ (\%) = \left(\frac{W_2 - W_1}{Wt\ of\ sample}\right) \times 100$$

Where W_1 = weight of crucible

W_2 = weight of crucible and material

Wt = weight of sample

- The fat content was determined by the continuous solvent extraction method using a Soxhlet apparatus and calculated as

$$Fat\ (\%) = \left(\frac{W_2 - W_1}{Wt\ of\ sample} \right) \times 100$$

Where W_1 = weight of empty extraction flask

W_2 = weight of flask and oil extract

Wt = weight of Sample

- The carbohydrate content was calculated by difference as the Nitrogen Free Extractive (NFE) as

% NFE	=	100% - (a + b + c + d + e)
Where a	=	Protein
b	=	Fat
c	=	Fiber
d	=	Ash
e	=	Moisture

- Citric acid (CA) was determined titrimetrically (AOAC, 1995) using 0.1 N NaOH and phenolphthalin as indicator and calculated as % according to the following formula:

$$Citric\ acid\ (\%) = \frac{Normality \times Volume\ of\ NaOH \times equiv.\ wt.\ of\ Citric\ acid}{Weight\ of\ sample\ (g) \times 10}$$

Appendix B

Dielectric Properties of Papaya Puree

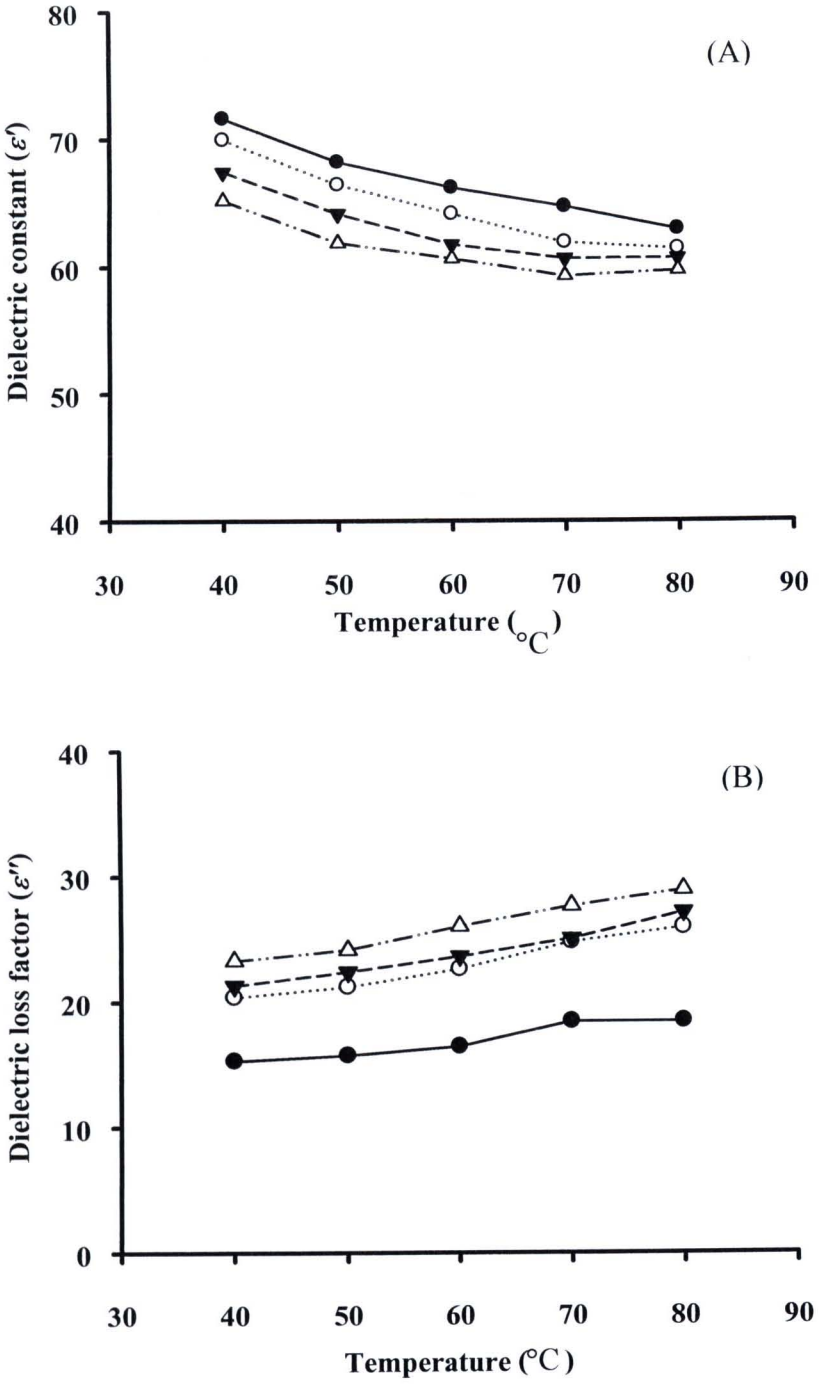

Figure B.1 Dielectric properties, (A): dielectric constant and (B): dielectric loss factor of papaya puree at different soluble solids contents (•):10 °Brix (∘):15 °Brix (▼): 20 °Brix (△): 25 °Brix as a function of temperatures at frequencies of 915 MHz (Using Network analyzer, Agilent Technologies N5230A PNA-L Model)

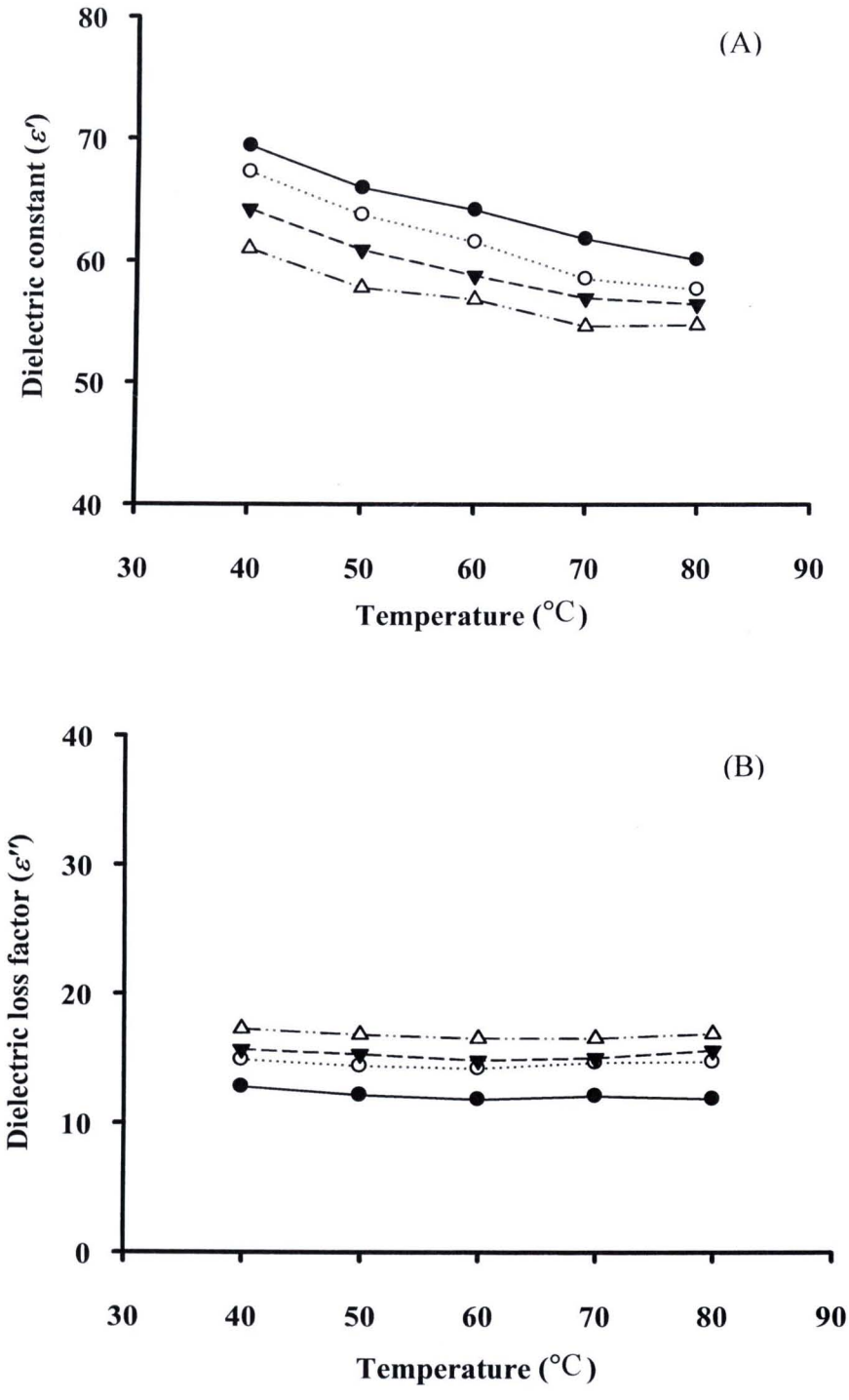

Figure B.2 Dielectric properties, (A): dielectric constant and (B): dielectric loss factor of papaya puree at different soluble solids contents (•):10 °Brix (∘):15 °Brix (▼): 20 °Brix (▵): 25 °Brix as a function of temperatures at frequencies of 2450 MHz (Using Network analyzer, Agilent Technologies N5230A PNA-L Model)

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Program Master of Engineering Field of Study Food Engineering
Faculty/School Engineering
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