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## Temperature dependent microwave dielectric study of some edible oils

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**Abstract:**The real ( $\epsilon'$ ) and imaginary ( $\epsilon''$ ) parts of the complex dielectric constant ( $\epsilon^*$ ) of unsaturated edible oils are measured at different temperatures ranging from 303K to 343K at 7.0 GHz microwave frequency. Microwave J-band setup in the  $TE_{10}$  mode with slotted section and crystal detector used for these measurements. The measured values of dielectric constant and dielectric loss show remarkable variation with temperature for all oils. It is observed that the dielectric constant ( $\epsilon'$ ) of edible oils decreases with increase in temperature while the dielectric loss ( $\epsilon''$ ) increases with increase in temperature. The variation in dielectric constant and dielectric loss with temperature may be due to their different physical and chemical properties.

The dielectric properties of oils are in good agreement with those reported by earlier researchers.

**Keywords:** Microwave J-band, Dielectric constant, Dielectric loss.

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