Modelling the kinetics of seedless guava (Psidium guajava L.) peroxidase inactivation due to heat and thermosonication treatments.

Abstract

Effect of heat and thermosonication on inactivation kinetics of peroxidase in seedless guava have been studied over a temperature range of 80-95°C. Application of thermosonication was studied at 25, 50 and 75% of radiation intensity at the same temperature range. Ultrasonic wave’s intensity had significant ($P<0.05$) effect on peroxidase inactivation rate except the 25% intensity radiation. In both treatments, the enzyme kinetics showed a first-order kinetics model with monophasic behaviour. The activation energy, the rate constants were estimated which proving that the enzyme became more heat labile. Therefore, thermosonication can affect a process with reduced processing time and increased efficiency.

Keyword: Peroxidase inactivation; Seedless guava; Thermal inactivation; Thermosonication.