

The effect of high temperature on viscosity of palm oil during the ripening process of fresh fruits.

ABSTRACT

This research was done on Tenera oil palm variety (A cross between Dura and Pisifera) on eight-year-old palms planted in 2003 at the Malaysian Palm Oil Board (MPOB) Research Station. Fresh fruit bunches were harvested and were removed the fruits from outer and inner layers of them randomly, during the ripening process between 8, 12,16 and 20 weeks after anthesis for oil extraction and determine to the affect of high temperature on palm oil viscosity as a Non-Newtonian fluid during the ripening process. The soxhlet extraction tubes with hexane were used to palm oil extraction.Oil viscosity as a one of the important rheological properties of palm oil during the oil development in the bunch and constant function of shear rate, exhibiting Non-Newtonian fluid behaviors was measured by Rheostress, (Thermo Hakke, RS 600, Germany) with rotary parallel plates (35 mm diameter and 0.5 mm gap distance) in order to the effect of high temperature on palm oil viscosity. The oil was sheared at a constant shear rate of 100 s⁻¹ over temperatures ranging from 20 to 70 °C and viscosity was then measured. All experiments were carried out in Microsoft Excel and MSTAT-C to statistical analysis and Regression coefficients.

Keyword: Constant; High Temperature; Oil palm FFB; Oil extraction; Ripening; Statistical analysis and Viscosity.