## C226330 : MAJOR FOOD TECHNOLOGY
KEY WORD: THERMAL PROPERTIES / Musa suerier / Musa sapientum Linn.
SANGSWAT UDOMDEJWATANA : THERMAL PROPERTIES OF Musa suerier AND Musa sapientum Linn. THESIS ADVISOR : ASST. PROF. KALAYA CHASONGKRAM, Ph.D., ASST. PROF. SAIWARUN CHAIWANICHSIRI, Ph.D., ASSOC. PROF. CHAIYUTE THUNPITHAYAKUL, Ph.D. 122 pp. ISBN 974-581-800-3

The objective of this research was to measure the specific heat (Cp), thermal conductivity (k), thermal diffusivity ($\alpha$) of bananas (Musa suerier and Musa Sapientum Linn.) and to study the effects of moisture content (50 - 70% for Musa suerier and 45 - 65% for Musa sapientum Linn.) and temperature (60 - 100°c and -30 to -10°c) on their thermal properties. The last part was to determine the relationship between thermal properties and moisture content and temperature.

The Cp, K and $\alpha$ were measured by the modified method of mixture, the thermal conductivity probe and the thermal diffusivity tube, respectively. At high temperature level (60 - 100°C), the corresponding Cp, K and $\alpha$ of Musa suerier were 0.6613 - 0.8382 cal/g°C, 0.2893 - 0.9513 W/m-K and $1.7763 \times 10^{-7}$ to $2.2626 \times 10^{-7}$ $m^2/s$ while Musa sapientum Linn. were 0.5831 - 0.8154 cal/g°C, 0.4103 - 0.9667 W/m-K and $2.3069 \times 10^{-7}$ to $2.4430 \times 10^{-7}$ $m^2/s$. At low temperature level (-30 to -10°C), the corresponding Cp, K and $\alpha$ of Musa suerier were 0.3336 - 0.5287 cal/g°C, 0.4837 - 1.9327 W/m-K and $3.5368 \times 10^{-7}$ to $8.9159 \times 10^{-7}$ $m^2/s$ while Musa sapientum Linn. were 0.3197 - 0.5152 cal/g°C, 0.5117 - 2.2290 W/m-K and $3.9272 \times 10^{-7}$ to $10.5534 \times 10^{-7}$ $m^2/s$, respectively. The relationship between thermal properties ( Cp, K and $\alpha$ ) and moisture content and temperature of both bananas were found to be a polynomial function.