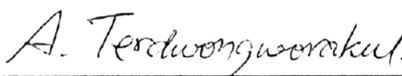Parichart Ratmanee 2007: Investigation on Detection of the Translucence in Mangosteen by Measurement of Heat Transfer in Rind. Master of Engineering (Food Engineering), Major Field: Food Engineering, Department of Food Engineering. Thesis Advisor: Associate Professor Anupun Terdwongworakul, Ph.D. 118 pages.

This research investigated differentiation of translucence mangosteen. Prior to the measurement, mangosteen were stored at 25°C for one day. There followed physical property measurements such as specific gravity, rind hardness, temperature change in rind and rind moisture content. The results showed that the optimum depth of the heating and thermocouple probes into the rind was 3 mm and the shortest time for collecting the temperature change in rind was 200 s.

Statistical analysis for each individual parameter indicated that the specific gravity, load at limit, maximum load, work to maximum load, area under the temperature curve of the rind opposite to big section at 3 mm depth, principal component factor of the rind of big section at 3 mm depth and factor of the rind opposite to big section at 3 mm depth were significantly different between normal and translucent mangosteen. Discriminant analysis showed that when using all parameters with area under the temperature curve as a parameter of temperature change in rind, the separation between normal and translucent mangosten was as accurate as 66.3%. Upon using all parameters with principal component factors as parameters of temperature change in rind, the differentiation accuracy increased to 69.8%. With all non-destructive parameters such as specific gravity, rind hardness, area under the temperature curve and principal component factors of the temperature change as independent variables, the classification accuracy was 70.4%. The most contributing parameter in mentioned three classifications was load at limit of the rind hardness.

P. Ratmanee	_A. Terdwongworakul_ 24 / 10 / 07	
Student's signature	Thesis Advisor's signature	