Thesis Title: Study on the Characteristics of Morphology, Anatomy, Physiology and Seed Drying Oil of Mapok (*Parinari anamense* Hance) for Germplasm Classification

Author MR.UTAI TOONGTAB

Thesis advisory committee:

..... Chairman

(Associate Professor Dr. Sumrit Feungchan)

..... Member

(Associate Professor Tawekiat Yimsawat)

..... Member

(Dr. Sumana Neera)

Abstract

This research work was carried out during November 1997 to February 1999 at the Department of Horticulture, Khon Kaen University, Khon Kaen, Thailand to investigate the growth and drying oil contents of mapok (*Parinari anamense* Hance.) with respect to morphological, physiological aspects and drying oil contents of the crop plants. There were 60 lines of mapok being selected from 257 lines being used and they were used as treatments.

The results showed that there were some statistical differences found on volume of seeds, weights of seed and did on bio-chemical characteristics of drying oil contents. The amounts of drying oil contents of all treated plants were also statistically differed from one another. The highest drying oil contents were found with line number

235 with code line number 1468, and line number 183 with code line number 10833 for 60.99 and 59.89 %, respectively. There was some significant correlation between drying oil contents and number of chlorophyll a and total chlorophyll. Plant heights had some correlation with the thickness of leaves, phloem thickness of roots, sizes of vessel tubes, chlorophyll a and total chlorophyll. Plant height has its significant effect on drying oil contents of the crop plants, i.e. the taller the plant the greater the drying oil content. Furthermore, the results also evidently shown that thickness of leaves has some good correlation with plant height, chlorophyll b i.e. the greater the thickness of leaves the greater the amount of drying oil content. Similarly, the thickness of phloem of stem and root and sizes of vessel tubes had significant correlation with plant height, amount of chlorophyll, drying oil contents. Therefore, these characteristics could be used for the selection for high drying oil contents of the crop plants. Whilst branching of stems, number of leaves, leaf areas, morphological characters of leaves on epidermal cells, palisade layer cells had no effect on drying oil contents of the mapok crop plants.