

Supraanee Ngamprasitthi 2011: Seed Development and Storability of Physic Nut (*Jatropha curcas* L.) Accession KUBP 74. Doctor of Philosophy (Agronomy), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Associate Professor Sunanta Juntakool, Ph.D. 177 pages.

Physiology of growth and development of *Jatropha curcas* L., accession KUBP 74 were studied at Suwanwajokkasikit Field Crops Research Station, Pakchong district, Nakhon Ratchasima province during March 2007-May 2008. It was found that 50 percent seed germination exhibited within 9.25 days while field germination within 15 days was 93 The performance of *Jatropha curcas* L., accession KUBP 74 at 12 months after planting was 241 cm height, 16 cm stem diameter and 138 cm of plant canopy.

Seed development of accession KUBP 74 after fertilization revealed the morphological and structural change continuously. Fruit and seed dry weight were increased and reached maximum at physiological maturity stage at 70 day after anthesis while seed moisture and germination were and germination were 33.44 and 98.5 percent respectively. Harvesting stage of *Jatropha* seed was at 90-120 day after anthesis while seed moisture was 9-10 percent and germination was 95.5-97.0 percent.

Seed storage under 2 conditions; room temperature of  $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$  and  $70 \pm 2\%$  RH and controlled room of  $13^{\circ}\text{C} \pm 2^{\circ}\text{C}$  and  $42 \pm 2\%$  RH and 2 different kind of containers; cloth and plastic bags resulted that after 12 months the storage condition and container affected on seed germination of *Jatropha curcas* L., accession KUBP 74. The seed germination significantly reduced in accordance with the increase of storage time. In sand test revealed that seed germination were 78.3 and 72.3 percent when kept in cloth bag and storage in controlled and ambient room, and 71.5 and 69.5 percent when kept in plastic bag container, respectively. The results of field test exhibited the same trend as in standard test. The longer duration of storage caused increasing in free fatty acid and acid value. Seed in cloth bag in ambient temperature, the oil content reduced from 52.9 to 52.0 percent and oil components; palmitic, stearic, oleic and linoleic acid reduced from 14.27, 6.23, 44.57 and 33.62 percent to 0, 2.66, 0, and 1.66 percent, respectively.

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Student's signature

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Thesis Advisor's signature