

Auttapon Rukkaphan 2010: Development and Yield Variation on Selected Clones of Physic Nut (*Jatropha curcas* L.). Master of Science (Botany), Major Field: Botany, Department of Botany.
Thesis Advisor: Associate Professor Lily Kaveeta, Ph.D. 139 pages.

Development and yield variation study of 10 selected clones of physic nut (*Jatropha curcas* L.) which have been clonal selected for 2 cycles were grown from seedling and cutting under nature conditions of dry and rainy season at field experiment of KU-Biodiesel project, Kampangsan campus, Kasetsart University. The results showed that the characters of vegetative growth on 240 days after planting had more variations in growing season with plant height, plant canopy, number of primary branch per plant and number of total branch per plant. Plants from seedling method were more in plant height, plant diameter, number of node per plant and number of primary branch per plant than cutting method, but were less number of total branch per plant than cutting method. The selected clones of physic nut had more variation in plant height and number of node per plant. Positive correlation of number of total branch per plant with plant height, plant canopy, and plant diameter were also found in all 2 seasons and 2 planting methods. Day to first flowering of selected clones were between 98 - 168, 58 - 145 and 51 - 153, 48 - 102 days after planting at seedling and cutting method in dry and rainy season, respectively. The selected clone that early flowering and dwarfed character was No 19/109 and lately flowering and height character was No 32/115. There were positive correlation of day to first flowering with plant height at day to first flowering in all 2 seasons and 2 planting methods. The first harvest at 10 month after planting, there were more variations in number of fruit per fruit cluster, number of fruit per plant, number of seed per plant and 100 seed weight in planting season; number of fruit cluster per plant, number of fruit per fruit cluster, number of fruit per plant, number of seed per plant, 100 seed weight and seed weight per plant in planting methods and selected clones. For the second harvest at 11 - 16 months after planting, there were more variation in number of fruit cluster per plant and seed weight per plant in planting season; number of fruit cluster per plant, number of fruit per plant, number of seed per plant, seed weight per plant and 100 seed weight in planting methods and selected clones. Clone No 19/8 was most high in number of seed per plant and seed weight per plant in both of the first and second harvest.

Student's signature

Thesis Advisor's signature