

BIOLOGY, CULTIVATION, AND PRODUCTION OF GIANT PASSION FRUIT (*PASSIFLORA QUADRANGULARIS* L.)

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ABSTRACT

Passion fruits are widely known for its unique flavour, fruity aroma, and desirable organoleptic properties. It belongs to the family Passifloraceae comprising more than 500 species. There are only two forms of *Passiflora edulis*; i.e., purple and yellow passion fruits which are widely cultivated on a commercial scale. In Malaysia, only less than eight *Passiflora* species were recorded. Out of this, *Passiflora quadrangularis* L. also known as the giant passion fruit, has received rising attention by growers in recent years due to its phytotherapeutic properties and ethnobotanical uses. There is great potential of expanding this species on a commercial scale in Malaysia with a market focus both at national and international levels. However, information on its cultivation, adaptability, and nutritional properties are scarce. Therefore, this paper aims to shed some light on the giant passion fruit. Our research revealed that the giant passion fruits' first flower blooms 6 months after transplanting, followed by fruiting at two months after anthesis. This pattern was similar to the purple passion fruit. Giant passion fruit flowers require a slightly longer period (16.8 ± 0.84 days) to bloom after visible appearance. Flowers of this species started to open early in the morning at $06:52 \pm 0.17$ hour followed by anthesis at $08:06 \pm 0.23$ hour and remained open until sunset. Contradictory to purple passion fruit which flowers all year round, this species only exhibits two peaks with minor peaks recorded in January–March and major peaks in September–November. Good fruit yields were observed throughout the year which was attributed to its ability for self-pollination. The production of *P. quadrangularis* which produced bigger fruits, was $18,800.62 \text{ kg ha}^{-1}$ (9,585 fruits) with fruit weight ranged from 774.2g–3034.4g.

Keywords: giant passion fruit, mesocarp, *Passiflora quadrangularis*, phenology, yield