

Growth development and structural changes of Malaysian jackfruit cv. Tekam Yellow syncarp

ABSTRACT

Jackfruit (*Artocarpus heterophyllus* Lam.) that belongs to the family Moraceae is an important fruit crop in Malaysia. The planting acreage of jackfruit especially cv. Tekam Yellow has increased by 17.08 % from 2014 until 2018. Jackfruit is highly nutritional with rich phytochemical composition where the flesh and seeds are used as a cooling tonic and as a remedy for overcoming the influence of alcohol in the body. The dietary fibres in jackfruit protect the colon mucous membrane by binding to and eliminating cancer causing chemicals from the colon. Despite the importance of jackfruit to human dietary, little is known about the growth and structural changes during the inflorescence and syncarp development of jackfruit. The study was conducted at a jackfruit commercial farm in Bukit Beruntung (latitude 3°25'32.7432 N; longitude 101°33'21.0240 E), Selangor, Malaysia from January to December 2017. A total of 120 inflorescences and 64 syncarps were used in this study with a randomized complete block design. The earliest phase of the inflorescence involves the development of the ovary and decision to abort or to proceed with further cell division and fruit development, known as syncarp set. In the second phase, the growth of syncarp involves primarily cell division. The third phase begins after cell division ceases. During this phase, syncarp growth continues, mostly by cell expansion, until the syncarp reaches its final size. This growth phase is more prominent and physiologically most significant because of the strong sink activity exerted by the expanding cells. Each stage of syncarp development is marked differently by its cellular activities. A comprehensive study on the phenology growth stage of jackfruit has been published by Kishore (2018). However, the study on growth stage and changes in the cellular structure of jackfruit has yet to be published. Therefore, the aim of this study was to determine growth stages and structural changes in the inflorescence and syncarp development of jackfruit cv. Tekam Yellow. Knowledge of cellular structure changes during the syncarp development is crucial especially for growers to apply proper cultivation practices at different growth stages according to industrial demands for optimum yields and profits.

Keyword: Bulb; Cellular structure; Growth stage; Inflorescence; Spike