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Description of mung bean inflorescence architecture and associations with synchronous pod maturity

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[Introduction]

Mungbean (Vigna radiata (L.) R. Wilczek) is one of legume species cultivated mostly in South, East and Southeast Asia, and it belongs to the subgenus Ceratotropis of genus Vigna in the family Fabaceae. In addition, it has advantages for the cultivation because of its growing with a short life-cycle as well as self-pollinating ability. However, the harvesting efficiency is worse than other crops because of its non-synchronous maturity that thus requiring several harvests. In this study, we try to measure the degree of synchronous and non-synchronous maturity in six different genotypes of mungbean and investigate associations with the inflorescence architecture traits.

[Materials and Methods]

Six accessions, Binh khe D.X., Tam Chi Lang Lang Son, Mo Quang Ngai, Tam Nghia Dan, Ma thua khieu and Sunhwa Nokdu were used in this study. Harvests were conducted in two ways for 42 days starting from days of first mature pods. One of the methods is that plants are harvested six times with one-week interval after maturity time. The other way is that plants were harvested only once at six weeks after maturity time. The phenotypes are selected a total of 10 traits related to phenology and inflorescence.

[Results and Discussions]

We classified four genotypes as a non-synchronous type which is defined as having 80% of total pods harvested later than the synchronous type. Furthermore, they showed tendency to increase the number of branches and peduncles steadily even during harvest period. Generally, the inflorescence architecture of most cultivated mungbeans have a compound raceme inflorescence architecture that has both primary (main) and secondary branch. However, one unique genotype, named ‘Bink khe D.X.’, has a simple raceme inflorescence architecture where flowers are made directly by a primary (main) branch. Our results may be applicable to mungbean breeding strategies for improving synchronous maturity in pods.

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