Thesis Title Growth and Floral Development of Curcuma sparganifolia Gagnep. H.

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Abstract

A curcuma (Curcuma sparganifolia Gagnep.) spike comprised several flower bracts performed in spiral whirls. There were 4-6 florests inside each bract. Initiation of the flower spike occurred approximately 70 days after planting. The flower spike emerged and the first floret bloomed at approximately 91 and 105 days after planting, respectively.

Sectioning of curcuma flowers revealed that flower development consisted of 9 stages, i.e., I = vegetative stage, II = transitional stage, Br = initiation of floral bract, Pr = intiation of the first floral primordium, D = division of floral primordium, P = initiation of petals, Sp = initiation of sepals, A = initiation of stamens and G = initiation of carpels.

Florets in each bract developed alternately, one after another, each having its own bracteole. There were about 6-7 florets in each bract. Floret formation was completed before spike emergence.

Curcuma plants grown from bulbs, with storage roots sheared off, of small, medium and large sizes with the diameter of 8-12, 13-17 and 18-22 mm respectively did not differ significantly in sprouting dates, i.e. 18.60 days in average after planting. Plants from large-sized bulbs grew best with 40.94 cm. in height, 19.20 leaves per mother bulb, 6.24 leaves of the first shoot, 4.96 shoots per plant and 3.4 spikes per mother bulb, in average. The biggest shoots of the plants required shortest time to flower i.e. 104.82 days to spike harvesting with the best spike quality of 43.7 cm in length, 7.91 cm in width, and 8.46 and 11.72 bracts in green and purple, respectively.

Curcuma bulbs, 18-22 mm in diameter, with 0, 1, 2 and 3 storage roots did not differ in days to sprouting, i.e. 18.3 days in average. Plants from bulbs with 3 storage roots performed best growth, i.e. 44.90 cm in plant height, 6.85 shoots and 4.9 spikes per mother bulb. The biggest shoots with 4.44 leaves in average took 52 days, 73.02 days and 87.02 days in average to spike initiation, spike emergence and spike harvesting respectively. Number of storage roots had no effect on total number of leaves per mother bulb, length and width of spike and total number of bracts per spike. But, the bulbs with 3 storage roots gave the highest number of purple bracts, i.e. 14.35 bracts in average.