

Siriviwat Sanjan 2012: Breeding of Purple Chilli for High Anthocyanin. Master of Science (Agriculture), Major Field: Horticulture, Department of Horticulture. Thesis Advisor: Miss Shermarl Wongchaochant, Ph.D. 157 pages.

Breeding of purple chilli by crossing with black chilli were studied. The black and purple chillies were collected and grown at Kasetsart University. The ten lines of black chilli and nine lines of purple chilli were selected. Black and purple chillies were grown in two condition 1. Field condition were light intensity = $97.77 \mu\text{mol m}^{-2} \text{s}^{-1}$ temperature = 34.58°C and Relative humidity = 54.79 % 2.Greenhouse condition were light intensity = $26.24 \mu\text{mol m}^{-2} \text{s}^{-1}$ temperature = 34.75°C and Relative humidity = 54.04 %. The characteristics of selected black chilli was black fruit color, unbranch fruit set, larger plant size and higher content of anthocyanin than purple chilli. The characteristics of purple chilli were branched-flower and branched-fruit set. The plants were grown in different conditions, e.g., field and greenhouse conditions. F_1 hybrids from cross-pollinated between black and purple chillies, showed high fruit set percentage 50 to 100%. All of them had unbranched-fruit set and showed heterosis of many characteristics, e.g., earlier flowering date, fruit size and weight, flower and fruit number, fruit set percentage and high anthocyanin content in both planting conditions. The highest content of anthocyanin in fruit 1,087.32 was found in hybrid of B.8.24 \times P.15.9. Hybrid of B.7.6 \times P15.16 produced the highest fruit weight and fruit number 2.89 g and 179.3 fruits per plant, respectively. The selected hybrids were self-pollinated for branched-flower, branched-fruit set and black fruit color. The segregation of self-pollinated revealed that plant size, fruit size, fruit weight and anthocyanin content were lower than F_1 hybrids, while flower and fruit number were higher. The highest fruit number 182.4 fruits per plant was found from progeny of self-pollinated of B.8.12 \times P.1.2 hybrids. Progeny of self-pollinated of B.10.20 \times P.10.11 hybrids produced the highest anthocyanin content 367.06. When comparison with black and purple chillies the results showed all F_1S_1 had higher yield component averages especially anthocyanin content higher than purple chillies and black chillies purple 37.81 and 10.95 times

Student's signature

Thesis Advisor's signature