

Establishment of a Habanero-Type Pepper (*Capsicum chinense*) Synthetic Base Population -2

Francisco J. B. Reifschneider^{1,3*}, Luciano L. Nass¹ and Claudia C.S. Ribeiro²
francisco.reifschneider@embrapa.br

¹Embrapa International Relations; ²Embrapa Vegetables; ³Fellow, CNPq

There are millions of accessions maintained in gene banks around the world. One strategy to improve their utilization is to develop base populations with high genetic variability. These populations can be used by breeders in order to secure the development of new and more adapted cultivars, decreasing the effect of the restricted genetic base, a reality for the main crops. In soybeans and a few selected autogamous crops, multiple crosses to increase variability have been used, despite the high labor needed. Crosses with a high number of parental lines tend to present higher variability and therefore higher genetic variance. The development of base populations having wide adaptation and resistance to major diseases and other limiting factors in peppers in Brazil is a recent effort concentrated on Brazilian species such as *C. chinense* and *C. frutescens*. A program to develop a synthetic base population of habanero from which superior lines could be isolated was initiated in 2007 at Embrapa Vegetables. The population was established from a broad genetic base of accessions originating mostly from Brazil but also from other sources. Thirty one *C. chinense* accessions were used: CNPH 4214, CNPH 4215, CNPH 4218, CNPH 4219, CNPH 4253, CNPH 4254, CNPH 4255, CNPH 4256, CNPH 15.023, CNPH 15.024, CNPH 15.025, CNPH 15.026, CNPH 15.027, CNPH 15.028, CNPH 15.029, CNPH 15.030, CNPH 15.031, CNPH 15.032, CNPH 15.033, CNPH 15.034, CNPH 15.035, CNPH 15.036, CNPH 15.037, CNPH 15.038, CNPH 15.039, CNPH 15.040, CNPH 15.041, CNPH 15.042, CNPH 15.043, CNPH 15.044 and CNPH 15.045, with relevant characteristics varying from high vitamin C content (up to 130 mg/100g) to multiple disease resistance and very high pungency (up to 1 million SHU).

Plants were cultivated in screenhouses, several flowers/plant emasculated and crossed with a pollen mixture from all accessions. Seeds obtained from these crosses were individualized by plants and for the succeeding generation only one plant of each genotype obtained in the previous cycle was grown in a screenhouse. F1 seeds bulked (fixed weight/plant) forming the base population, CNPH 15,469, which is presently being field grown in Brasília for multiple traits evaluation. Several strategies have been developed to take maximum advantage of the variability which has been generated, from genetic studies to the immediate extraction of genotypes for the release of new cultivars in a relatively short period of time (4 years); up to 10 genotypes are expected to be selected based on desirable characteristics and behavior during the dry season (April-October).

Acknowledgements: The authors thank CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico) for the support.