

Genetic Diversity in Capsicum Germplasm Based on Inter Simple Sequence Repeat Markers

Authors : Siwapech Silapaprayoon, Januluk Khanobdee, Sompid Samipak

Abstract : Chili peppers are the fruits of Capsicum pepper plants well known for their fiery burning sensation on the tongue after consumption. They are members of the Solanaceae or common nightshade family along with potato, tomato and eggplant. Thai cuisine has gained popularity for its distinct flavors due to usages of various spices and its heat from the addition of chili pepper. Though being used in little quantity for each dish, chili pepper holds a special place in Thai cuisine. There are many varieties of chili peppers in Thailand, and thirty accessions were collected at Rajamangala University of Technology Lanna, Lampang, Thailand. To effectively manage any germplasm it is essential to know the diversity and relationships among members. Thirty-six Inter Simple Sequence Repeat (ISSRs) DNA markers were used to analyze the germplasm. Total of 335 polymorphic bands was obtained giving the average of 9.3 alleles per marker. Unweighted pair-group mean arithmetic method (UPGMA) clustering of data using NTSYS-pc software indicated that the accessions showed varied levels of genetic similarity ranging from 0.57-1.00 similarity coefficient index indicating significant levels of variation. At SM coefficient of 0.81, the germplasm was separated into four groups. Phenotypic variation was discussed in context of phylogenetic tree clustering.

Keywords : diversity, germplasm, Chili pepper, ISSR

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