

辣椒EST-SSRs 的分布特征及在品种多样性研究中的应用

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Distribution Characteristics of EST-SSRs and Their Application on Varieties Genetic Diversity Analysis in Pepper

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摘要 为开发高效实用的EST-SSRs 标记, 从120 605 条辣椒无冗余EST 序列中共搜索到10 179 条至少含有1 个SSR 的EST 序列, 占EST 总数的8.44%。高频重复类型为一核苷酸、二核苷酸和三核苷酸, 占EST-SSRs 总数的91.63%。最常见的基元是A/T, 其次是TC/GA和CT/AG。设计合成了20 对EST-SSRs 引物并对25 份辣椒材料进行了PCR 扩增, 结果表明: 17 对引物在供试辣椒材料中能扩增出明显的条带, 其中12 对引物扩增出42 条多态性条带, 平均多态性条带为3.5 条, 引物的多态性信息含量介于0.21 ~ 0.95 之间。利用EST-SSRs 标记对供试品种的聚类分析结果与形态学、生物学分类结果基本一致, 表明本研究中开发的EST-SSRs 标记可用于辣椒种质资源的遗传多样性分析。

关键词: 辣椒 EST-SSR 分子标记 遗传多样性

Abstract: Abstract: To develop efficient and practical EST-SSRs markers, 10 179 EST sequences each of which contained at least one SSR were obtained from 120 605 non-redundant EST in pepper, accounting for 8.44% in all EST. Mononucleotide, dinucleotide and trinucleotide were the main repeat types with a percentage of 91.63% in all EST-SSRs. A/T was the most frequent motif with a frequency of 31.17%, followed by TC/GA and CT/AG, accounting for 10.0% and 9.97% respectively. Twenty pairs of EST-SSRs primers were designed and synthesized and were used to amplify 25 pepper varieties. The results showed that 17 pairs of primers could amplify clear bands, and 12 out of 17 pairs could amplify 42 polymorphic bands with an average of 3.5 bands per pair of primer. The polymorphic information content of primers screened were between 0.21 and 0.95. The clustering results of 25 pepper varieties based on EST-SSRs markers were in agreement with morphological and biological classification, it is indicated that EST-SSRs markers developed in the study could be used for germplasm resources genetic diversity analysis in pepper.

Keywords: pepper, EST-SSR, molecular marker, genetic diversity

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