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Efficacy of random primer-pair arrays in plant genome analysis: a case study of *Cucumis* (Cucurbitaceae) for identification of wild and cultivated species

E.M. Gatphoh, S.K. Sharma, K. Rajkumari and S. Rama Rao

Plant Biotechnology Laboratory, Department of Biotechnology and Bioinformatics, North-Eastern Hill University, Shillong, Meghalaya, India

Corresponding author: S. Rama Rao
E-mail: srrao22@yahoo.com / srrao@mail.com

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ABSTRACT. The efficacy of random primer-pair arrays compared to conventional RAPD method with a single decamer primer was evaluated using DNA from two species of *Cucumis*. The banding patterns of amplicons revealed enhanced utility of primer-pair arrays over conventional RAPDs, producing more bands and a higher degree of polymorphism, both at intra- and inter-specific levels. Amplification produced by both methods clearly distinguished a wild from a cultivated species of the genus *Cucumis*. The main advantage of the primer-pair RAPD over single-primer-based RAPD is the increase in the number of reactions and amplification products in the form of novel/unique bands with a limited number of primers. It also enables the generation of reliable amplicons with a large number of polymorphic bands, which can be linked to gene-governing traits, allowing sequence-characterized partial genome analysis.

Key words: Primer-pair arrays; RAPD; Novel bands; Efficacy; Genetic variation

