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Genetic diversity in Pearl millet inbred lines using SSR markers

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Pearl millet [*Pennisetum glaucam* (L.) R. Br.] is a cereal cultivated in drought-prone semi-arid regions of Africa and the Indian subcontinent for food, forage and fodder. It is a principal source of energy, protein, vitamins and minerals for millions of poor people in the regions where it is cultivated. Pearl millet productivity can be increased by growing varieties/hybrids with improved characters for which new allele combinations need to be discovered. All these generate the need for genetic diversity study. Morphological descriptors alone are not enough so, molecular markers have gained importance. PCR based markers like SSRs have been adjudged as more reliable for such studies. A set of thirty SSR markers were used to study diversity in thirty-six pearl millet genotypes. DNA from leaf tissue was isolated using CTAB method. PCR followed by PAGE revealed a good polymorphism among these genotypes. Mean allele per locus and PIC obtained was 10.5 and 0.8, respectively. UPGMA cluster analysis differentiated all the lines.

Biography

Sonali Sangwan has completed her BSc Life Sciences in 2013 from Dayanand Postgraduate College, Hisar. She is currently pursuing her MSc working on genetic diversity study in pearl millet.

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Cloning of NBS-LRR gene and its application as a biocontrol agent

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The Nucleotide Binding Site-Leucine Rich Repeat (NBS-LRR) is the disease resistance gene present in plants. One of the major challenges faced by modern agriculture is to achieve not only a satisfactory but also an environment friendly control of plant diseases. Therefore in this work it is aimed to clone NBS-LRR gene from *Jatropha* to *E. coli* and use it as the biocontrol agent to overcome these challenges. *Jatropha curcus* was chosen as the source for NBS-LRR gene because there are about 150 clones of resistance (R) genes present in it. The primer was designed specific to the NBS-LRR gene and it was amplified by Polymerase Chain Reaction (PCR). The amplicon was observed to be 600 bp. It was then eluted for ligation with pGEMT vector. Totally 107 colonies were obtained in blue white screening, out of which 41 were white. Presence of insert was confirmed by PCR confirmation and restriction analysis. The dual culture test was done against *Fusarium* and activity was compared with *Trichoderma* and normal *E. coli*. The transformed *E. coli* DH5α strain exhibited 64% inhibition which was more efficient than *Trichoderma* which showed 61% and normal *E. coli* with 43% inhibition. Therefore the transformed strain was formulated and can be used as a biocontrol agent.

Biography

Sri Ram A has completed his BTech in Biotechnology from K S Rangasamy College of Technology, Tamil Nadu. He is currently pursuing his MTech in Biotechnology at Amity Instituite of Biotechnology, Noida. He has filed a patent (for the formulation process) for his project entitled “Cloning of NBS-LRR gene and its application as a biocontrol agent”.

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