Isolation and characterization of Restriction Enzymes from Sri Lanka

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Type II Restriction enzymes (REs) have the ability to cleave double stranded DNA in a sequence specific manner regardless of the origin of DNA and helps bacteria to protect their own DNA from phages[1]. Due to their tremendous impact on recombinant DNA technology, particularly molecular cloning, extensive research is being carried out to isolate, purify and characterize novel restriction enzymes with unique specificities[2]. Restriction enzyme containing bacteria have been isolated from various habitats. This is the first attempt to screen and isolate REs from bacteria in Sri Lanka

Soil and water samples were collected from different regions and habitats of Sri Lanka. Bacterial isolates were obtained from these samples. Five millilitre cultures of well isolated colonies were grown in Luria-Bertani (LB) medium. The cell pellets obtained were screened for the presence of restriction enzymes. Briefly, bacterial cells were disrupted by sonication and the cell extracts were incubated with lambda DNA. Aliquots of the reaction mixture were separated by agarose gel electrophoresis, and the presence of distinct bands indicated the presence of REs. Initial screening of nearly 100 bacterial isolates revealed the presence of REs in 7 isolates. One isolate designated UprS3 was identified by 16S rRNA sequencing and was found to belong to genus *Lysinibacillus*. Characterization of other isolates is in progress.

Financial support from National Science Foundation (Grant RG/2014/BT/2) is gratefully acknowledged

References

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