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## Comparative study on whole genome sequences of *Aspergillus terreus* (soil fungus) and *Diaporthe ampelina* (endophytic fungus) with reference to lovastatin production

Lovastatin is a competitive inhibitor of the enzyme hydroxymethyl glutaryl coenzyme A reductase (HMGR) in cholesterol biosynthetic pathway and hence used in the treatment of hyperlipidemia. In a previous study, we report a tropical soil isolate, *Aspergillus terreus* (KM017963), which produces ample amount of lovastatin than its counterpart, which are endophytic in origin. Bioinformatic analysis of whole genome sequence of *A. terreus* (AH007774.1), a soil isolate revealed the presence of gene cluster responsible for lovastatin production, whereas, endophytic fungi including a species of *A. terreus* showed no homology with the lovastatin gene cluster. The molecular study was also carried out targeting PCR amplification of the two important genes, *lovE* (a regulatory gene) and *lovF* (transcriptional regulatory factor) in genomic and c-DNA of soil and endophytic fungi. Expression of the two genes was successful in *A. terreus* (KM017963), whereas the same was not achieved in endophytic fungi. To further validate our above findings, in the present study, the whole genome sequencing of *A. terreus* and a selected endophytic fungus, *Diaporthe ampelina* (Phomopsis) was performed. Lovastatin gene cluster, when aligned on the consensus sequence of both genomes, the entire lovastatin gene cluster was detected in a single scaffold (1.16) of *A. terreus* genome. On the contrary, there was a complete absence of lovastatin gene cluster in the genome of *D. ampelina* (an endophyte). The probable reasons for the absence of lovastatin gene cluster in endophytic fungi will be discussed.

### Biography

Savitha Janakiraman has received her PhD degree in Botany, Madras University and postdoctoral research in University of Hull, England under the Jawaharlal Nehru (UK) fellowship. Currently, she is working as Professor in Bangalore University, Department of Microbiology. She is the Chairman of Board of Examination (BOE) and Member of Board of syllabus and Academic Council of Bangalore University. She has published several research papers and has several research projects offered by Government funding agencies. Her interest of research is on Industrial Microbiology and Environmental Microbiology.

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