Computational analysis of peptides in Geobacter sulfurreducens associated with industrial pollution

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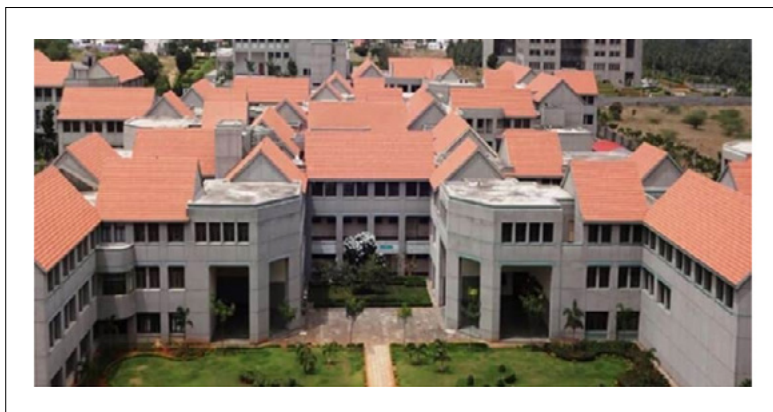
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Abstract

Geobacter sulfurreducens is a genus of proteobacteria. Geobacter species are anaerobic respiration bacterial species which have capabilities that makes them useful in bioremediation. *Geobacter sulfurreducens* are capable of creating thick networks of biofilms on microbial fuel cell anodes for extracellular electron transfer. Electric currents are produced when the transfer of these electrons to anodes is coupled of intracellular organic waste. The most upregulated gene, omcS was studied with respect to the reduction of Fe (III) and Mn (IV) oxide. In the workflow of bioinformatics, the FASTA format of omcS was retrieved using UNIPROT database. The FASTA sequence of omcS gene was uploaded in I-TASSER. Among various hits the PDB ID 1gnjA was similar to the target sequence and the associated ligand binding residues 205, 269, 282 were closely associated with binding portion of target sequence. In Future, three di-peptides will be constructed from the three amino acids and it can be validated in the area of bioremediation instead of the whole organism. These peptides will be useful in industries to degrade pollution. This paper is an initiation to identify the protein complex to extract the active peptides.

Biography

Harishchander Anandaram has completed his Master Degree in Bioinformatics at the age of 21 years from Sathyabama Institute of Science and Technology, Tamil Nadu, India. He is the Assistant Professor of Bioinformatics, Sri Krishna Arts and Science College, India. He has over 50 publications that have been cited over 20 times, and his publication has H-index of 4 and he has been serving as an Editorial Board Member in reputed journals.