

# Advancements in Environmental Biotechnology



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**NATURAL BIOACTIVE COMPOUNDS FOR THE MANAGEMENT OF**  
**TYPE 2 DEBATES: AN *IN-SILICO* APPROACH**

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**Abstract**

Diabetes Mellitus is one of the utmost potent a metabolic disorder of proteins, fats and carbohydrate metabolism which is characterized by post prandial and high fasting blood sugar levels. Diabetes mellitus results the production of insulin is less or dysfunction of insulin. Cyanobacteria are reflected good candidates for applications in pharmaceuticals, agriculture, and food industry. There are many activities of cyanobacteria have been reported which is antimalarial, antilarvicidal, anticancer, antioxidants, antibacterial, antiviral, antifungal, algacides, and cytotoxic activities. Recently, much attention has been given to bioactive compounds that may be beneficial for the prevention of diabetes. Much evidence exists that flavonoids, such as quercetin, anthocyanins, genistein, vitamins, such as vitamin D and C, and EGCG enhance beta-cell function, lead to glucose easiness in animal models and humans, and protect against diabetes. *In silico* or *computational* techniques play an important role in investigating multi-target directed ligands (MTDLs) with cost and time benefits. Several *in silico* techniques have been evolved, which can be divided into two major application areas, i.e., ligand-based drug design and structure-based drug design. Ligand-based drug design (LBDD) techniques like quantitative structure-activity relationship (QSAR) rely on knowledge of diverse ligands that interact with the biological targets of interest.

**Keywords:** Diabetes mellitus, Cyanobacteria, Bioactive Compounds, Molecular Docking, *In silico* approach, Drug Designing, T2DM