Advancements in Environmental Biotechnology

Dr. Roohi
Dr. Alvina Farooqui
Dr. Aisha Kamal

AARGON PRESS

Advancements in Environmental Biotechnology

Editors

Dr. Roohi

Dr. Alvina Farooqui

Dr. Aisha Kamal

Department of Environmental Science

Integral University, Lucknow (U.P) INDIA

AARGON PRESS

New Delhi

Advancements in Environmental Biotechnology

Dr. Roohi, Dr. Alvina Farooqui and Dr. Aisha Kamal

Published by
Aargon Press
EG-130, Inderpuri,
New Delhi-110012, India
Tel.: +91-11-9958121300
Email: info.aargonpress@gmail.com
Website: www.aargonpress.com

Disclaimer:

ISBN: 978-93-94070-17-2

Printed at: Aargon Press, New Delhi

TABLE OF CONTENTS

CHAPTER 5

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

Suhail Ahmad and Alvina Farooqui*

Department of Bioengineering, Integral University, Lucknow, Uttar Pradesh, 226026, India

***Corresponding email:** alvina@iul.ac.in

Abstract

Diabetes Mellitus is one of the utmost potent a metabolic disorder of proteins, fatsand 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, algaecides, 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