

Isolation and characterization of nitrogen fixing bacteria from rhizosphere of date palm soil in United Arab Emirates for the tree & fruit quality enhancement

Jannatul Ferdouse

Brandenburg University of Technology Cottbus-Senftenburg, Germany

Abstract

Studies of nitrogen fixing bacteria from date palm rhizosphere soil is important to improve the nitrogen fixation under stress condition. Isolation of nitrogen fixing bacteria will lead to development of new saline tolerant bacteria from the sample date palm soil. Soil lacking in Nitrogen fixing bacteria (NFB) can cause yellowing of the date palm leaves, stunted leaves & low fruit production. Rhizosphere soil were collected from six different locations in UAE and plated on ISM media. Bacterial count from all samples were ranged between 2.25×10^5 – 2.88×10^7 cfu/g. Based on the 16S rRNA gene studies, selected bacterial strains were sequenced and submitted to NCBI. Most of the bacteria identified belongs Bacillus sp and very few other nitrogen fixers, which were again confirmed by nif gene PCR. Based on the obtained results, date palm soil is dominated by spore forming bacteria Bacillus sp. Some of the reports stated that it acts as free nitrogen fixing bacteria and tolerate salinity. In future, screening the best strain of Bacillus sp will improve the soil nitrogen content and tolerate salinity. This will thus improve the quality & yeild of natural fruit size and improve the tree quality for other economic uses. Freedom from conventional fertilizers and hormones, this bacterial strain will be useful for further new bio-fertilizer development of the soil of region of UAE.

Conclusion: This will thus improve the quality & yeild of natural fruit size and improve the tree quality for other economic uses. Freedom from conventional fertilizers and hormones, this bacterial strain will be useful for further new bio-fertilizer development of the soil of region of UAE.

Biography:

Jannatul Ferdouse has completed her B.Sc in Environmental Sciences from Abu Dhabi University, Abu Dhabi, United Arab Emirates on 2016 where she has conducted this research. She started her Masters in Environmental and Resource Management on 2017 at Brandenburg University of Technology, Cottbus, Germany. Still at her maiden steps, she aims to contribute to scientific writing and research in her field.



Speaker Publications:

- Jannatul Ferdouse et al; Isolation and Characterization of Nitrogen Fixing Bacteria from Rhizosphere of Date palm soil in United Arab Emirates for the tree & fruit quality enhancement; December 2019
- Jannatul Ferdouse et al; Assessing informed consent practices during normal vaginal delivery and immediate postpartum care in tertiary-level hospitals; May 2018
- Jannatul Ferdouse et al; Perceptions and experiences with district health information system software to collect and utilize health data; February 2020
- Jannatul Ferdouse et al; Role of Endoplasmic Reticulum Stress Sensor IRE1 α in Cellular Physiology, Calcium, ROS Signaling, and Metaflammation; September 2020
- Jannatul Ferdouse et al; Water usage, hygiene and diarrhea in low-income urban communities-A mixed method prospective longitudinal study; September 2018

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