

25th International Conference on ADVANCED NANOSCIENCE AND NANOTECHNOLOGY

May 06-07, 2022 | Webinar

Received date: 06-12-2021 | Accepted date: 08-12-2021 | Published date: 24-05-2022

The 16S rRNA Characterization of bacteria can degrade monochloropropionic acid in contaminated water

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Organic compounds containing halogens are widely dispersed throughout the world, resulting in pollution. One of the most common xenobiotics used in agricultural activities is monochloroacetic (MCA). Isolated from the Tigris River in Iraq, this strain of bacteria is known as SW2. The standard universal primers Fd1 and rP1 were used with the colony PCR method for bacterial identification before being sent out for sequencing. Basic Local Alignment Search Tool nucleotide sequences and information were analyzed (BLASTn). The phylogenetic tree was constructed using the 16S rRNA sequence to determine their evolutionary distance. The Neighbor-Joining method was used to infer the evolutionary history, and the P-distance method was used to calculate evolutionary distances. The Neighbor-Joining method was used to infer the evolutionary history, and the P-distance method was used to calculate evolutionary distances. There is a 99 percent match between the SW2 bacterium and another type of aerobic Gram-Negative Bacteria. Strain SW2 (*Pseudomonas* Sp.) was inoculated for two days and yielded colonies that were small, non-spore-forming, and rod-shaped. Growth slowed slightly after 48 hours. A halide ion assay was used to monitor the release of chloride ions as a result of the degradation of MCA. Biochemical tests backed up the choice of the genus's name as well. As a result, bacteria found in the river have been shown to be capable of utilizing and degrading the MCA compound. In conclusion, this study confirmed the presence of bacterial strains isolated that have the potential to utilize MCA, especially

from contaminated environments pragmatic application of the bacterial strains to degrade residual herbicide.

Recent Publications:

1. Hassan Muslem, Wafaa & Muslim, Sahira & Ali, Alaa & Fayyad, Raghad. (2022). Detection of Disinfectant property of purified Amylopullulanase from *Citrobacter freundii* SW. *Research Journal of Pharmacy and Technology*. 847-852.
2. Hassan Muslem, Wafaa & Edbeib, Mohammed & Huyop, Fahrul & Wahab, Roswanira. (2021). Isolation and identification of bacteria degrading 2, 2-dichloropropionic acid in water.
3. Muslim, Sahira & Mohammed Ali, Alaa & Hassan Muslem, Wafaa & Fayyad, Raghad. (2021). Antimicrobial and Antibiofilm Properties for Chitosan Extracted by Biological Methods Running title: Antimicrobial and Antibiofilm for Chitosan Extract. *Annals of the Romanian Society for Cell Biology*. 25. 2050-2057.
4. Hassan Muslem, Wafaa & Edbeib, Mohammed & Aksoy, Hasan & Kaya, Yilmaz & Abdul Hamid, Azzmer & Hood, Mohammad & Wahab, Roswanira & Huyop, Fahrul. (2019). Biodegradation of 3-chloropropionic acid (3-CP) by *Bacillus cereus* WH2 and its in silico enzyme-substrate docking analysis. *Journal of Biomolecular Structure and Dynamics*. 38. 1-13.

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