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Data Article

Microbial biodiversity of Tang and Pirgal mud volcanoes and evaluation of bio-emulsifier and bio-demulsifier activities of Capnophile bacteria

Yasaman Parsia^a, Shahryar Sorooshian^{a,b,*}^a Faculty of Industrial Management, Universiti Malaysia Pahang, Gambang Kuantan 26300, Pahang, Malaysia^b Centre For Earth Resources Research & Management, Universiti Malaysia Pahang, Gambang Kuantan 26300, Pahang, Malaysia

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ABSTRACT

The data presented in this article is related to the Master thesis; entitled “Survey Aerobic Microbial Diversity Mud Volcanoes in Chabahar and Khash Ports in Southern Iran” by the first author of this article, year 2011, Islamic Azad University, Iran (reference number (Parsia, 2011) [1] of this article). This article shows microbial biodiversity and evaluates bio-emulsifier and bio-demulsifier abilities of capnophile isolates, in order to introduce a superior isolate for the Microbial Enhanced Oil Recovery (MEOR) process in the petrochemical industry.

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Specifications Table

Subject area	Microbiology, Biotechnology
More specific subject area	Use of superior isolates in Microbial Enhanced Oil Recovery (MEOR)
Type of data	Table, Text file

* Corresponding author at: Faculty of Industrial Management, Universiti Malaysia Pahang, Gambang Kuantan 26300, Pahang, Malaysia.

E-mail address: sorooshian@gmail.com (S. Sorooshian).

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How data was acquired	Screening of microbial groups based on their specific conditions (i.e., media culture, temperature, etc.). Biochemical identification of isolates. Evaluation of the bio-emulsifier and bio-demulsifier activities of capnophile isolates. Molecular identification and measurement of the surface tension of superior capnophile isolates in both activities.
Data format	Raw.
Experimental factors	Biochemical and microscopic tests were performed for all isolates for primary identification (biodiversity), to show some of their abilities, and then, evaluate the bio-emulsifier and bio-demulsifier activities of capnophile isolates.
Data source location	Pirgal and Tang mud volcanoes, Khash and Chabahar Ports, Southern Iran.
Data accessibility	The data is available in this article.

Value of data

- This data would be valuable for the further studies of microbial diversity that exists in Tang and Pirgal mud volcanoes.
- This data would be valuable for further studies to find varieties of microbes with unique biotechnological applications from Tang and Pirgal mud volcanoes.
- This data would be valuable for further studies to optimize the bio-emulsifier and bio-demulsifier activities of recognized isolates.
- Used direct molecular identification methods to recognize species and compare with currently culture and biochemical methods.

1. Data

The dataset used in this article provides information on the microbial biodiversity of both mud volcanoes as well as the bio-emulsifier and bio-demulsifier activities of capnophile isolates, in order to use them in the Microbial Enhanced Oil Recovery (MEOR) process of the petrochemical industry. Presentation of data in this article is described in [Table 1](#).

Table 1
Presentation of data.

Presented data	Tables
Name of group and number of microbial isolates from Tang and Pirgal mud volcanoes	Table 2
Biochemical identification of gram-negative bacteria	Table 3
Biochemical identification of spore forming gram-positive rods	Table 4
Biochemical identification of irregular colony, non-sporing, gram-positive rod strains with different catalase tests (+ or -)	Tables 5 and 6
Biochemical identification of regular colony, non-sporing, gram-positive rod strains with different catalase tests (+ or -)	Tables 7 and 8
Biochemical identification of non-sporing gram-positive coccus strains with different catalase tests (+ or -)	Tables 9 and 10
Identification of superior bio-demulsifier capnophile isolates based on degree of demulsification, followed by surface tension measurement and biochemical and molecular identification	Tables 11, 12, and 13
Identification of superior bio-emulsifier capnophile isolates based on degree of emulsification, followed by surface tension measurement and biochemical and molecular identification	Tables 14, 15 and 16

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