

Microbial flora obtained from quarry sand

R. Kamalambigeswari*, L. Jeyanthi Rebecca, Merina Paul Das, S. Anbuselvi

ABSTRACT

Introduction: This work has been undertaken for the screening of antagonist bacteria from quarry sand collected from dust yards of quarry industries of various regions of Nallambakkam, Chennai. **Materials and Methods:** The sample is used to screen for antagonist bacteria using MacConkey agar. **Results:** Predators, parasitoids, and pathogens are the natural enemies of insect pests. *Pseudomonas aeruginosa* was identified from quarry sand, which helps to kill and control the pesticides. **Conclusion:** Control of Pesticides can be projected with the help of these microbes.

KEY WORDS: *Klebsiella pneumonia*, MacConkey agar, Nallambakkam, *Pseudomonas aeruginosa*, *Siderophores*

INTRODUCTION

The antagonistic bacteria were employed for the study.^[1] The microbes which kill the host are called as parasitoids.^[2,3] Most of the microbes are found to be the parasitoids for many nutrients.^[4]

MATERIALS AND METHODS

Collection of Sample

Quarry sand was collected from the different region of quarry industry, Nallambakkam. Where concrete rocks were crushed in different shape and size and lots of dust produces during cutting or crushing of rocks that dust was collected from there to isolate the bacteria.

Isolation of Bacteria

Serial dilution process is done for the isolation of culture or bacteria. 20 sterilized and cleaned Petri plates and test tube were taken for serial dilution. Five plates of each sample were done.^[5,6] They were then plated in nutrient agar and MacConkey plates. Three colonies are grown in sample 1, given name as a small colony, big colony, and large colony.

Three colonies are grown in sample 2, given name as small colony, big colony, and large colony. Two colonies are grown in sample 3, given name as small colony and big colony. Two colonies are grown in

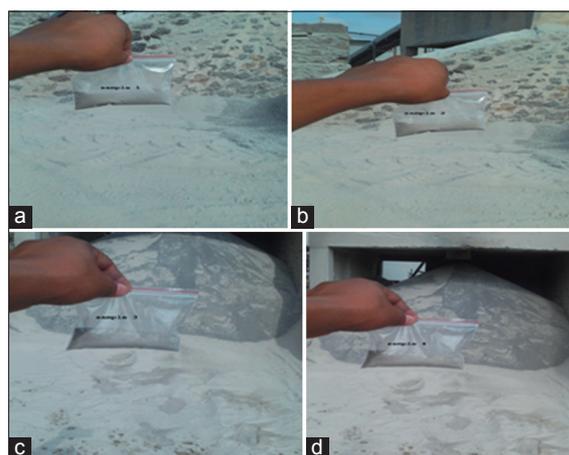


Figure 1: (a-d) The samples collected from the quarry industry

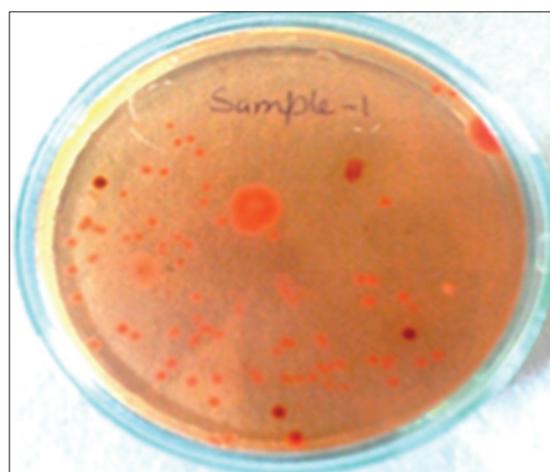


Figure 2: MacConkey agar plates

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Department of Industrial Biotechnology, Bharath Institute of Higher Education and Research, Chennai, Tamil Nadu, India

*Corresponding author: R. Kamalambigeswari, Department of Industrial Biotechnology, Bharath Institute of Higher Education and Research, Agaram Road, Selaiyur, Chennai, Tamil Nadu, India. E-mail: kamali_bt04@yahoo.co.in

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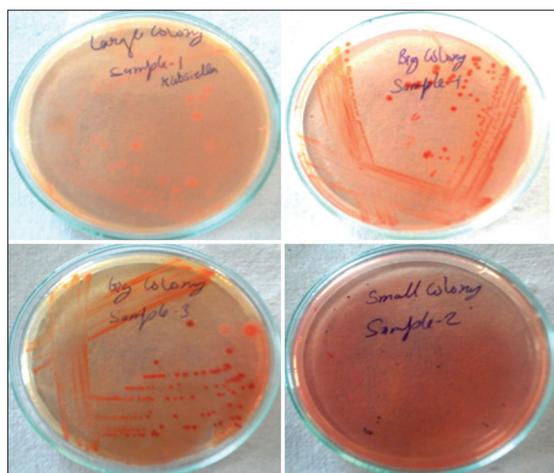


Figure 3: Identified bacteria

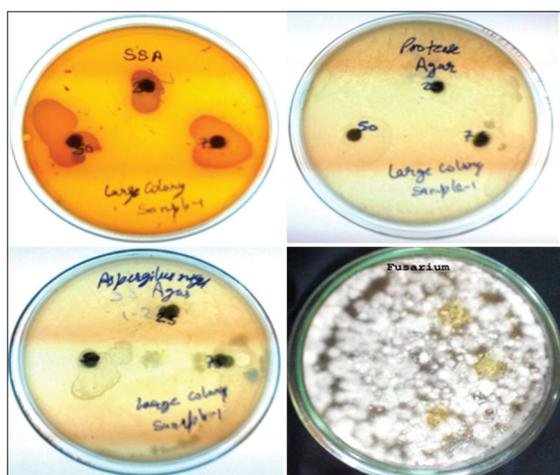


Figure 4: Effect of bacteria on pathogens (Sample 1, large colony/*Klebsiella pneumoniae*)

sample 4, given name as small colony and big colony. They were then subcultured.^[7]

RESULTS AND DISCUSSION

The identified bacteria were *Klebsiella Pneumoniae* and *Pseudomonas aeruginosa*.

P. aeruginosa is a common Gram-negative rod-shaped bacterium that can cause disease in plants and animals,

including humans.^[8] A species of considerable medical importance, *P. aeruginosa* is a prototypical “multidrug-resistant pathogen” that is recognized for its ubiquity.

The zone of inhibition on pathogen was little higher than *P. aeruginosa*. *K. pneumoniae* was more effective on pathogen [Figures 1-4].

CONCLUSION

From the present study, it was identified *P. aeruginosa* and *K. pneumoniae* from quarry sand, which help to control the pesticides. *P. aeruginosa* and *K. pneumoniae* are Gram-negative aerobe. *P. aeruginosa* is citrate, catalase, and oxidase positive. *K. pneumoniae* is a naturally occurring aerobe which is said to be the common diazotroph.

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