

# Identification of Two Bacterial Species Based on Their Ability to Bind and Metabolize Motor Oil

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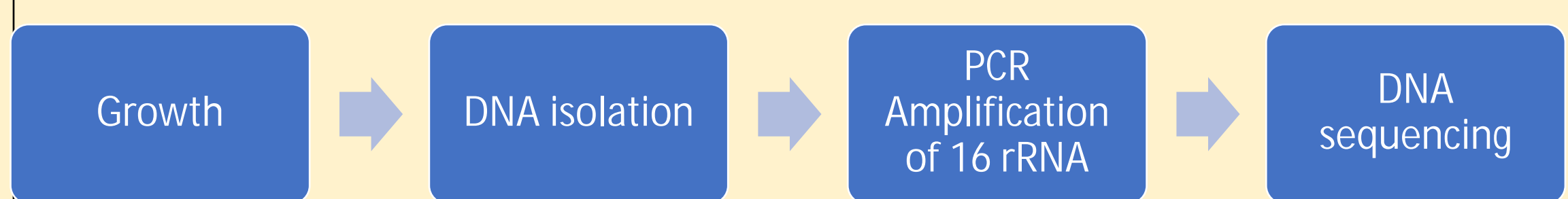


## Introduction

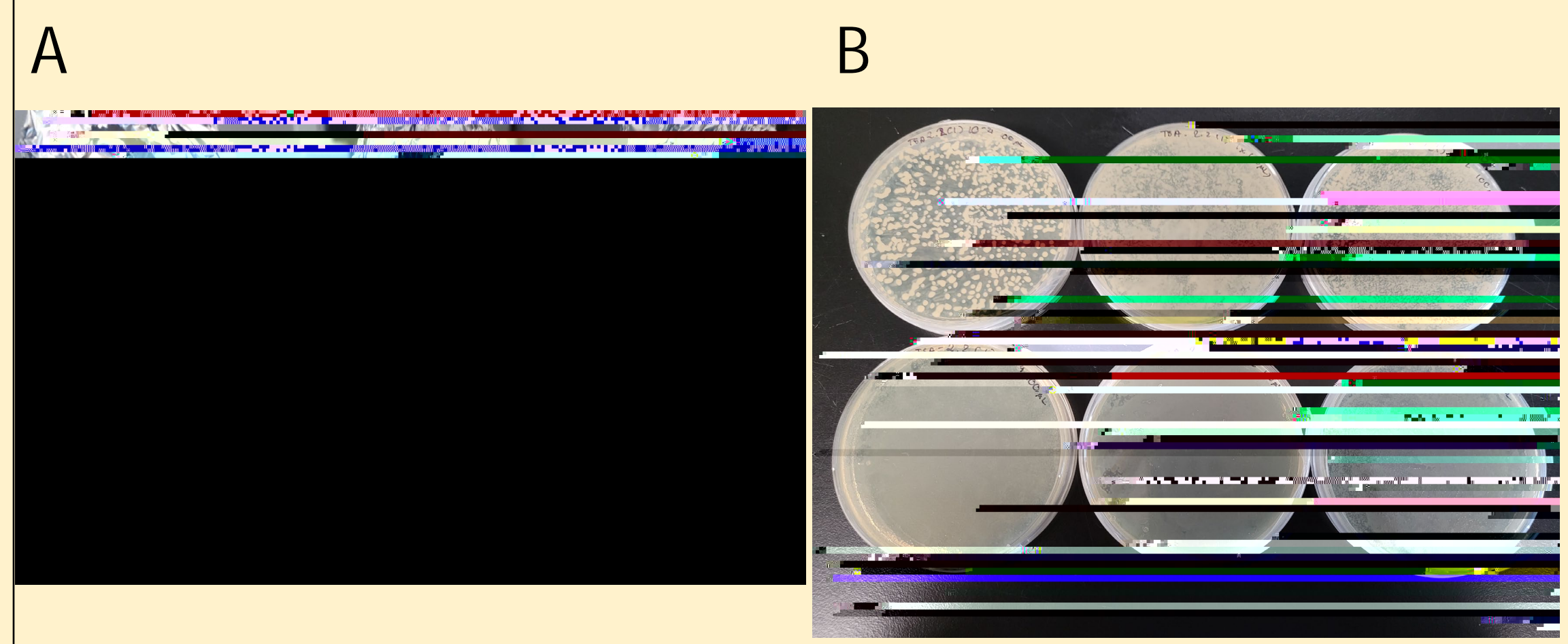
## Material and methods

- The Bacteria taken from the bacterial collection of Derkson et al. (2021) were chosen for their ability to bind and metabolize motor oil.
- Cultures were grown in Bushnell Haas Brotyh (BHB) with motor oil.
- Genomic DNA was isolated using a Sigma GeneElute™ Bacterial Genomic DNA Kit.
- 5 µL of genomic DNA was loaded into 0.8% (w/v) agarose gel. Lambda *Hind* III digested DNA was used as a standard.
- PCR of 16S rRNA was performed. The primers used in PCR were also from Derkson et al. (2021).
- 5 µL of PCR products were loaded into 1.5% (w/v) agarose gel. Quick load® 100bp DNA ladder was used as a standard.
- Serial dilutions were performed to investigate the growth rate of the bacteria in BHB.

### General workflow



## Results



**Figure 3:**  
 A. Growth of bacterial species in 25 mL BHB with 1.0mL of motor oil  
 B. TSA plates showing results of a serial dilution of the bacterial cultures in BHB with 1.0mL of motor oil

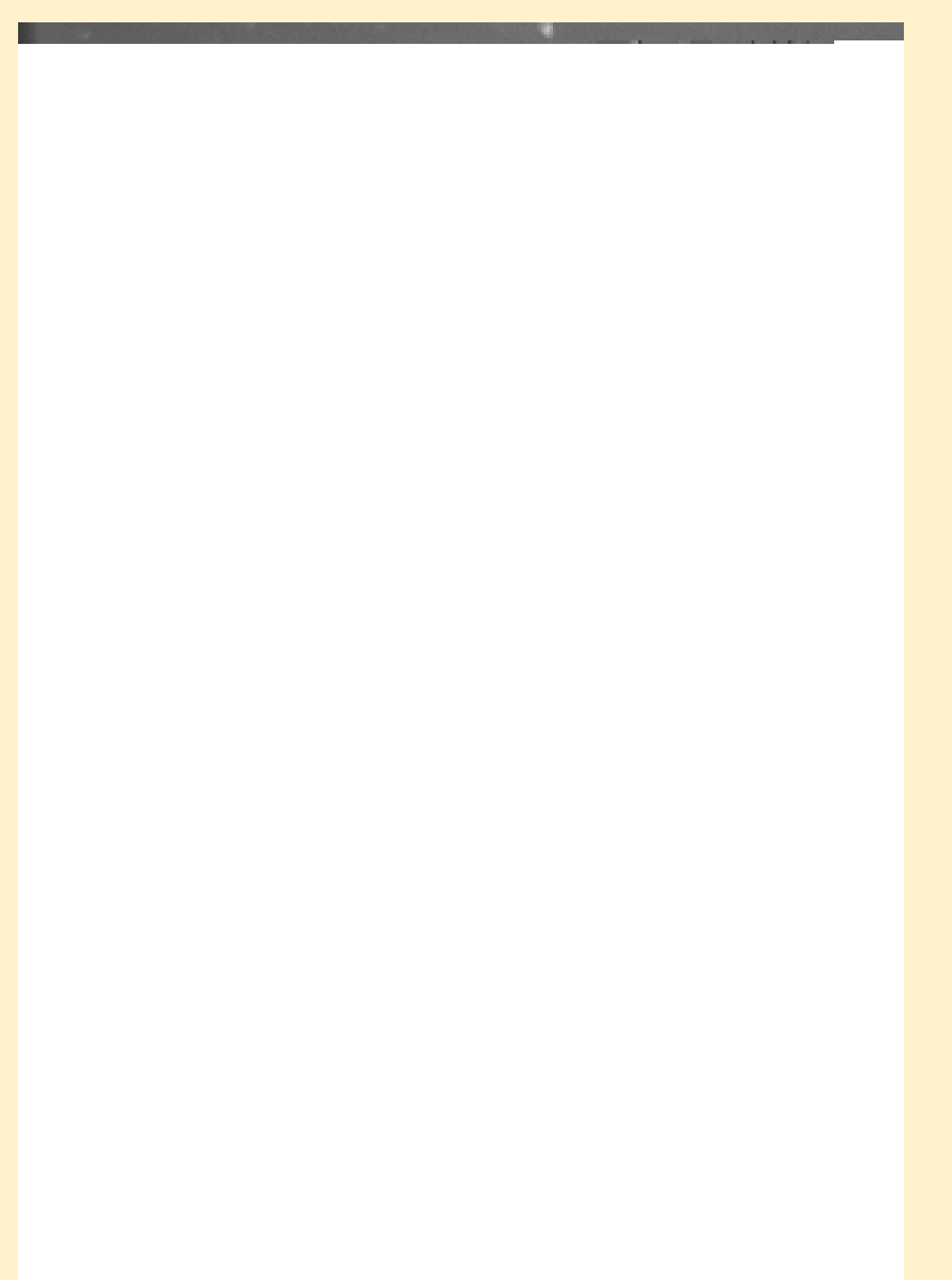
## Purpose

To identify bacterial species that have ability to bind and metabolize oil.

## Discussion



**Figure 4:**  
 Lane 1: Lambda DNA/ HindIII standard  
 Lane 2: 2.2(1) old  
 Lane 3: 2.2(1) new  
 Lane 4: 2.3(1) old  
 Lane 5: 2.3(1) new



**Figure 5:**  
 Lane 1: Quick-load 100bp DNA ladder  
 Lane 2: 2.2(1) old  
 Lane 3: 2.2(1) new  
 Lane 4: 2.3(1) old  
 Lane 5: 2.3(1) new

## Future Research

The data shows some potential for future research:

- The observation showed two bacterial species potentially have different mechanism to survive in motor oil (Figure 3). Previous data showed that tension for bacteria to bind and metabolize the

## Acknowledgement

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