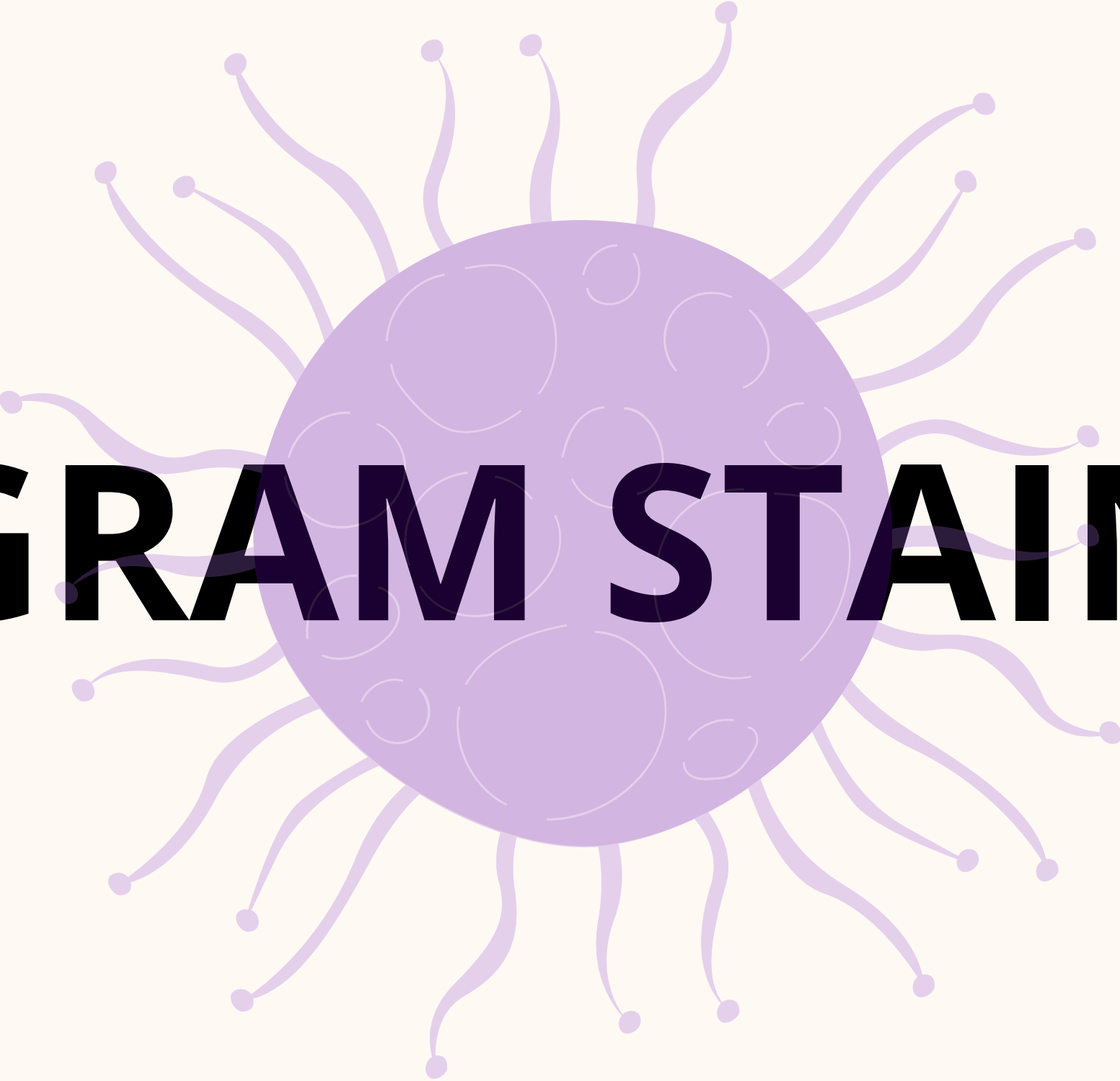
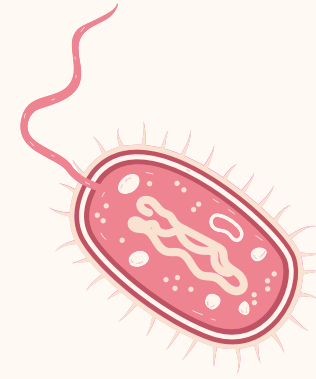
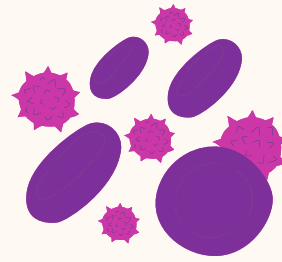
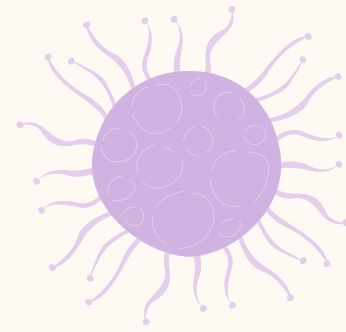


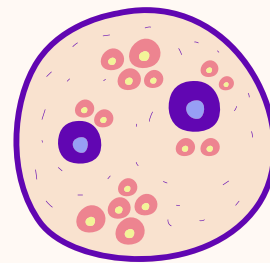


GRAM STAIN

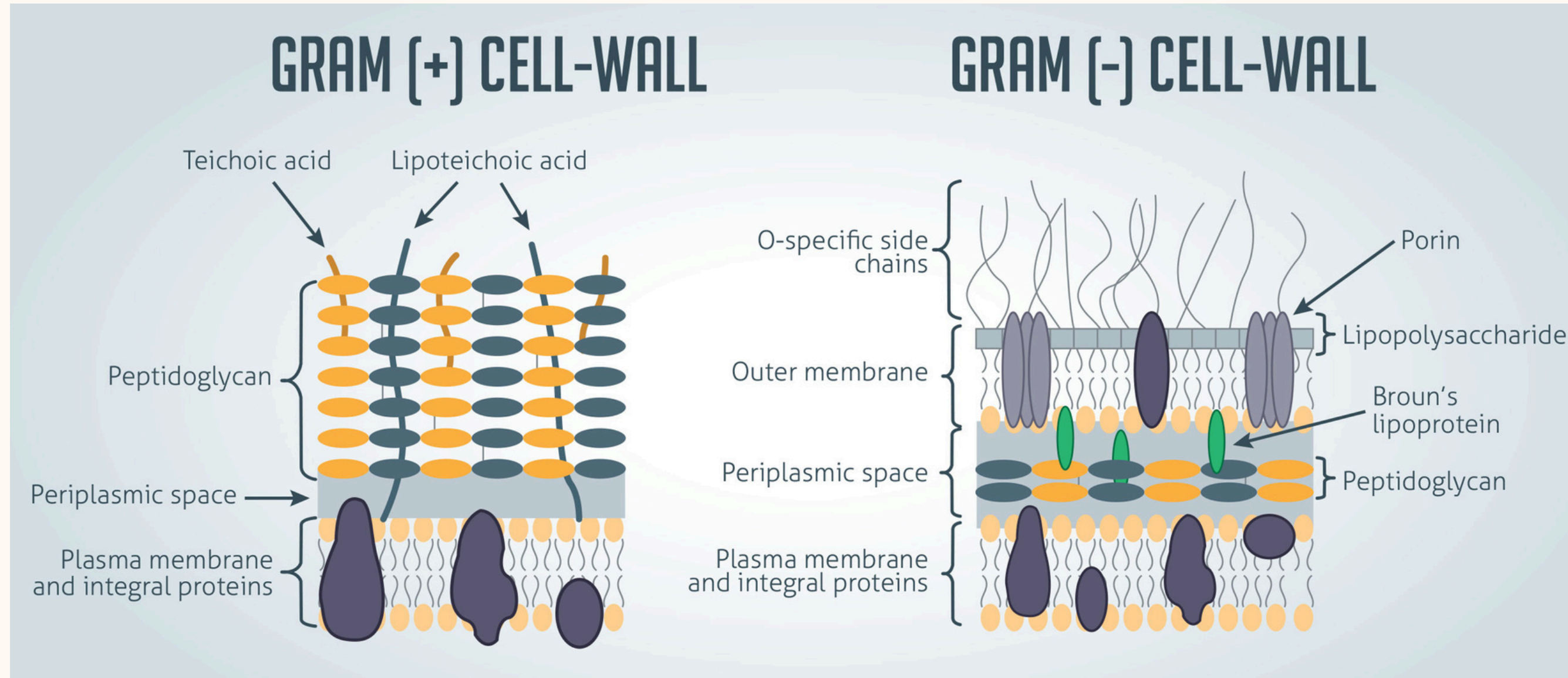
Joël Aymon - Chloé Bouchiat



GRAM STAIN Method



Gram + vs Gram -



Cell wall differences - Technology Network (Immunology and bacteriology)

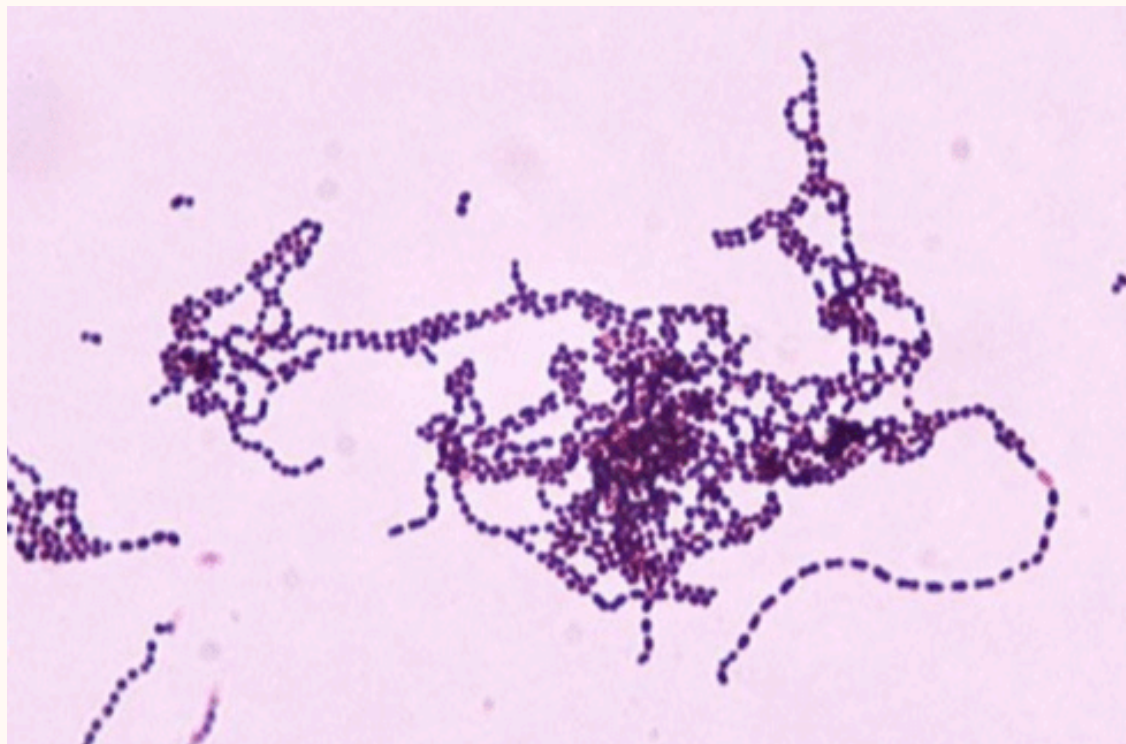
Gram + are **monoderms**

Gram- are **diaderms** and have **higher fatty acid** content

Gram + vs Gram -

Examples of Gram+ bacteria :

- Staphylococcus species
- Streptococcus species
- Listeria species
- Clostridium species



Streptococcus - gram stained

Dey, Rohit. (2016). Platelet Adherence by Oral Streptococci.



Neisseria gonorrhoeae

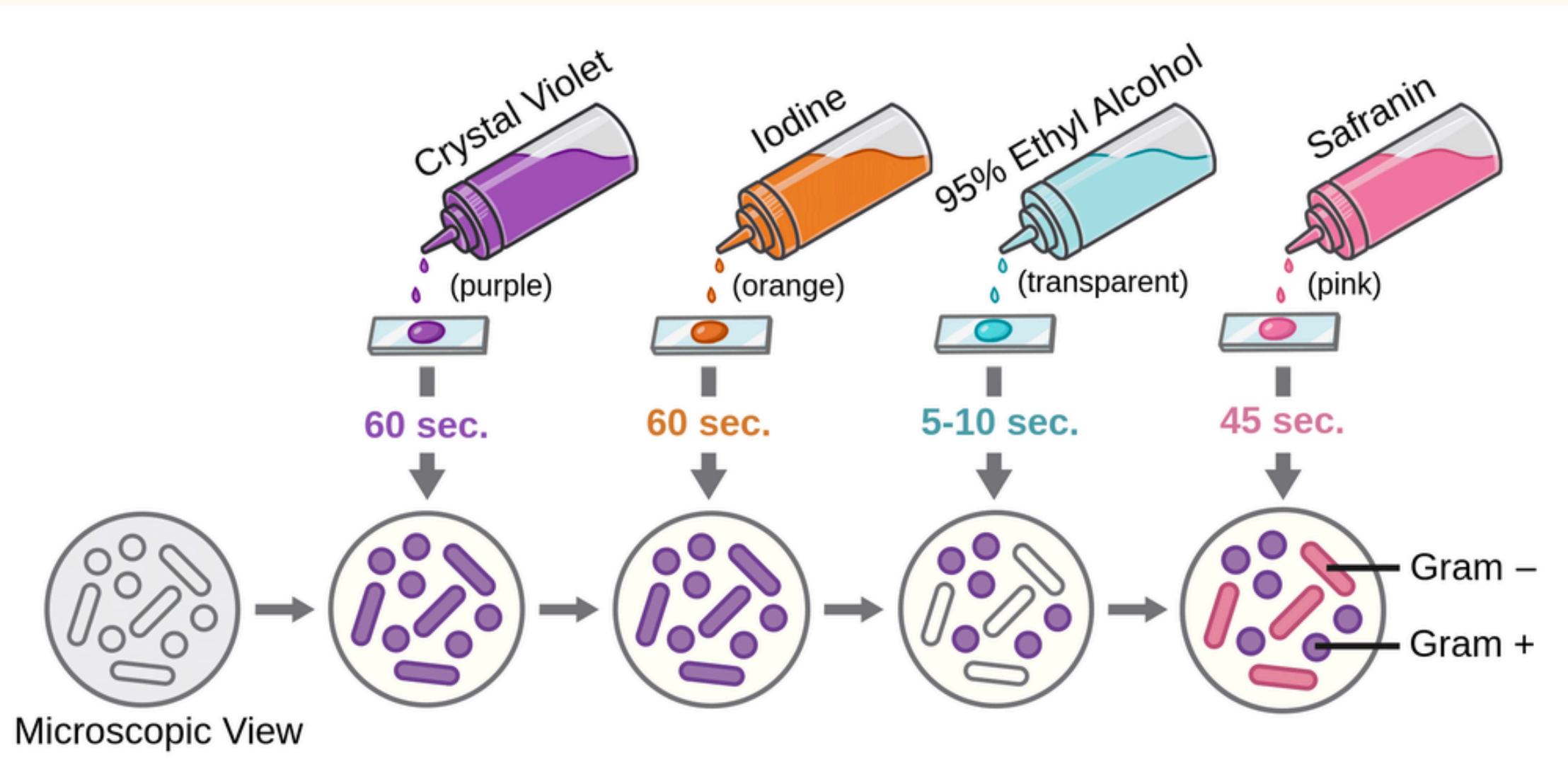
- artistic view from Zavamed

Examples of Gram - bacteria :

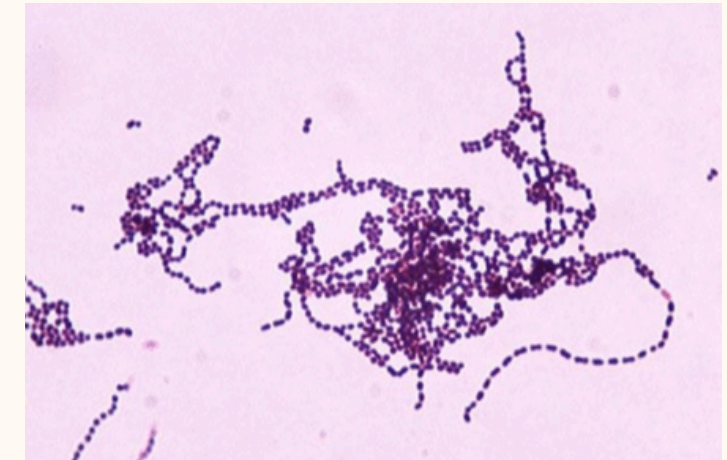
- Neisseria gonorrhoeae
- Neisseria meningitides
- Escherichia coli (E. coli)
- Salmonella species

Gram stain protocol

Designed in 1884 by Hans Christian Gram

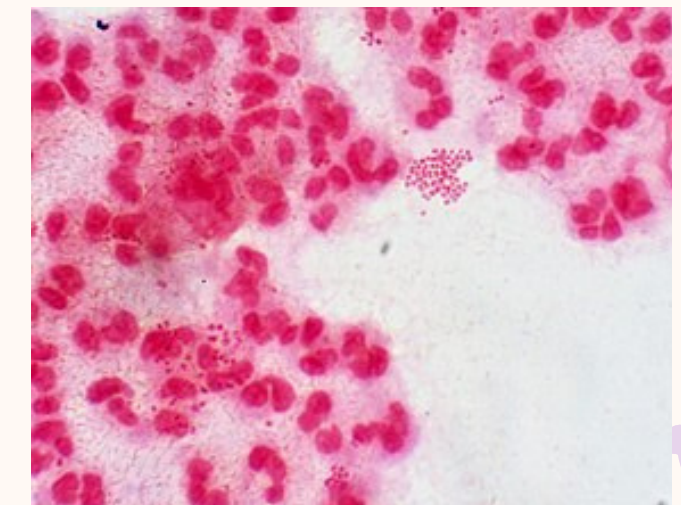


Gram stain protocol - Labster theory pages



Streptococcus - gram stained

Dey, Rohit. (2016). Platelet Adherence by Oral Streptococci.

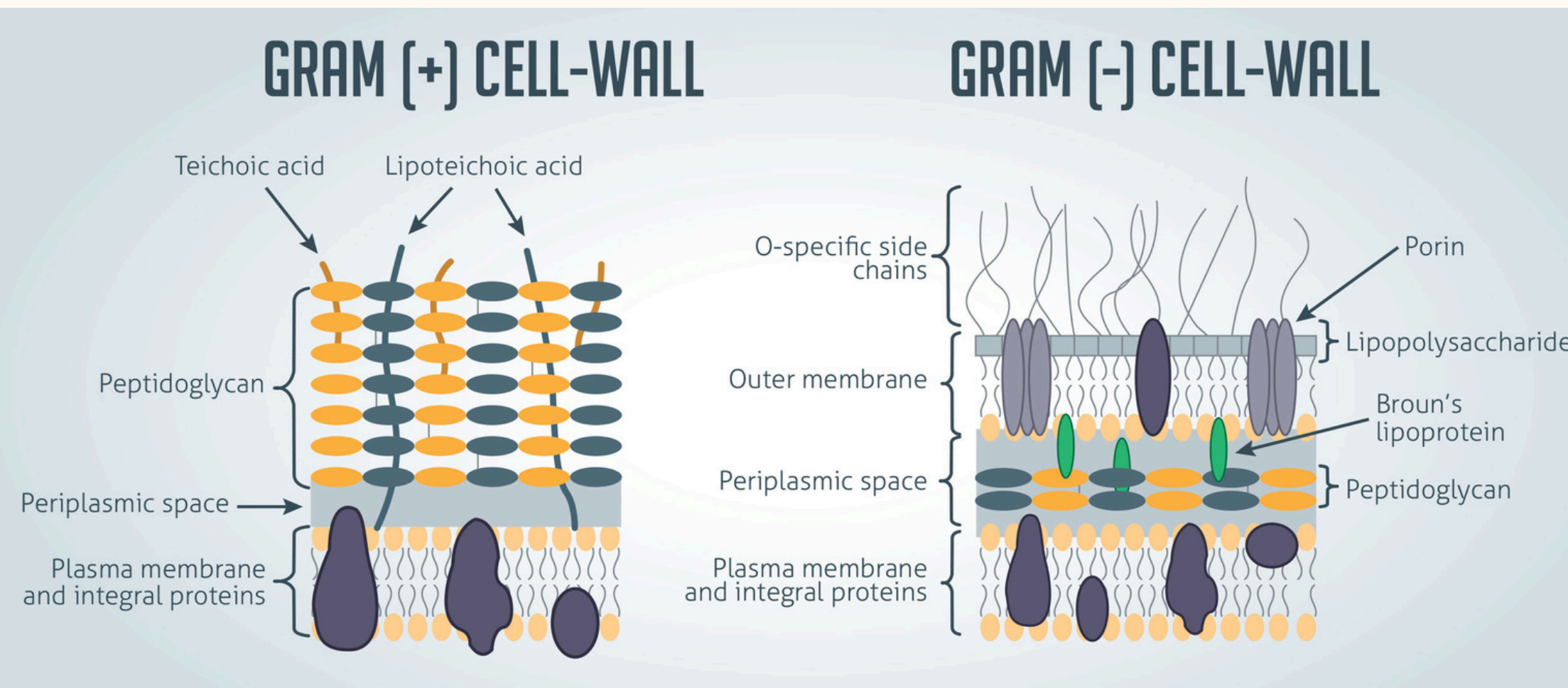


Neisseria gonorrhoeae - gram stained

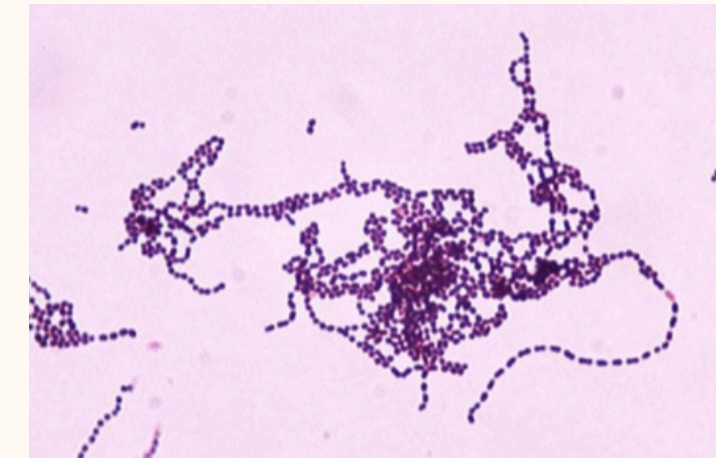
Dey, Rohit. (2016). Platelet Adherence by Oral Streptococci.

Gram stain protocol

Designed in 1884 by Hans Christian Gram

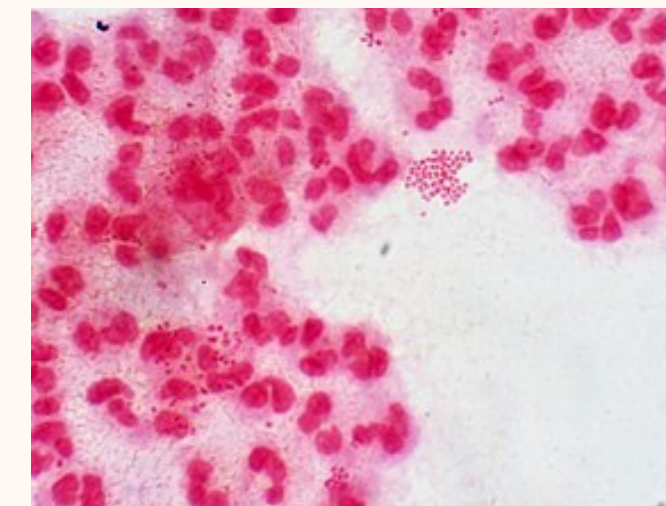


Cell wall differences - Technology Network (Immunology and bacteriology)



Streptococcus - gram stained

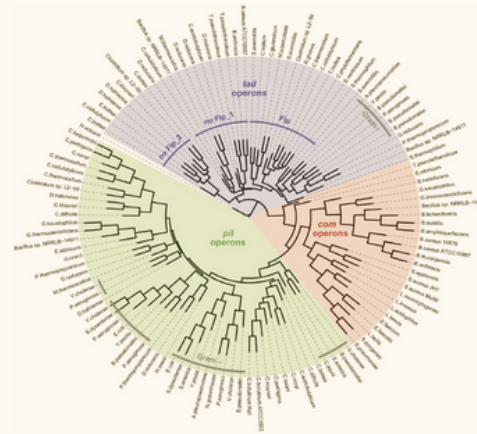
Dey, Rohit. (2016). Platelet Adherence by Oral Streptococci.



Neisseria gonorrhoeae - gram stained

Dey, Rohit. (2016). Platelet Adherence by Oral Streptococci.

Gram stain uses



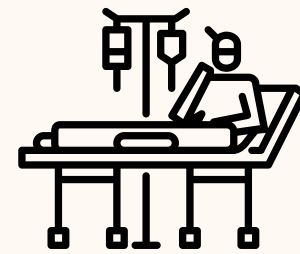
Two major domains :

- Taxonomy/Pylogeny
- **Health**



Gram+ bacteria :

- Staphylococcus species
- Streptococcus species
- Listeria species
- Clostridium species
-



Potential
pathogens

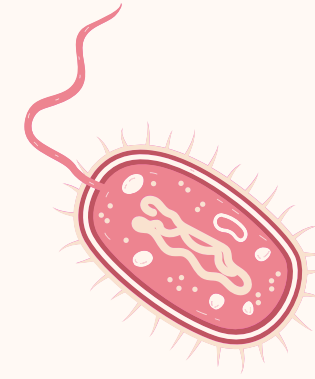
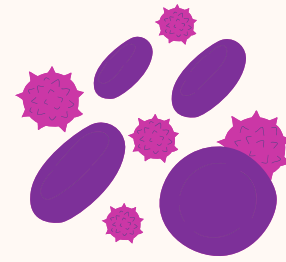
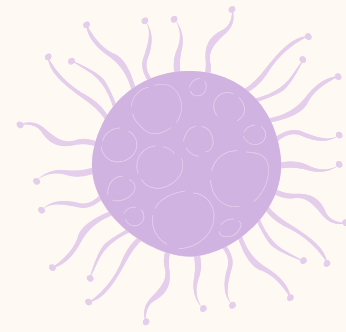


**90% Antibiotic-resistant priority
pathogens are Gram -**

Gram - bacteria :

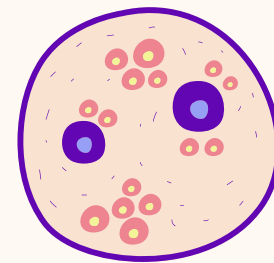
- Neisseria gonorrhoeae
- Neisseria meningitides
- Salmonella species
- Escherichia coli (E. coli)
- ...

- *Neisseria gonorrhoeae* (G-) -> gonorrhea
- Salmonella species (G-) -> gastroenteritis, typhoid fever



GRAM STAIN

Paper



Selection and screening of microbial consortia for efficient and ecofriendly degradation of plastic garbage collected from urban and rural areas of Bangalore, India

**Sinosh Skariyachan • M. Megha • Meghna Niranjana Kini •
Kamath Manali Mukund • Alya Rizvi • Kiran Vasist**

Received: 21 June 2014 / Accepted: 17 November 2014 / Published online: 13 December 2014
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Context and objectives



A few facts :

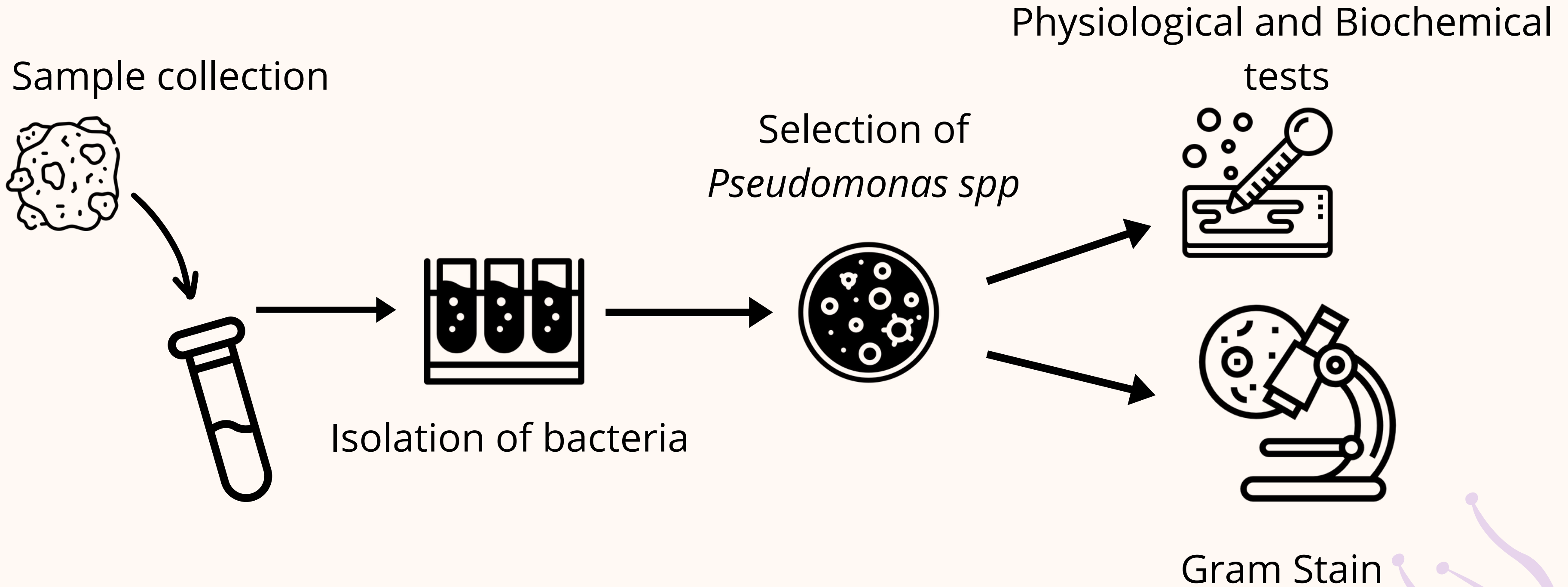
- India produces 9.3 billion tonnes of plastic waste each year
- Plastic degradation naturally occurring in the environment :
0.1 - 10 000 μm per year



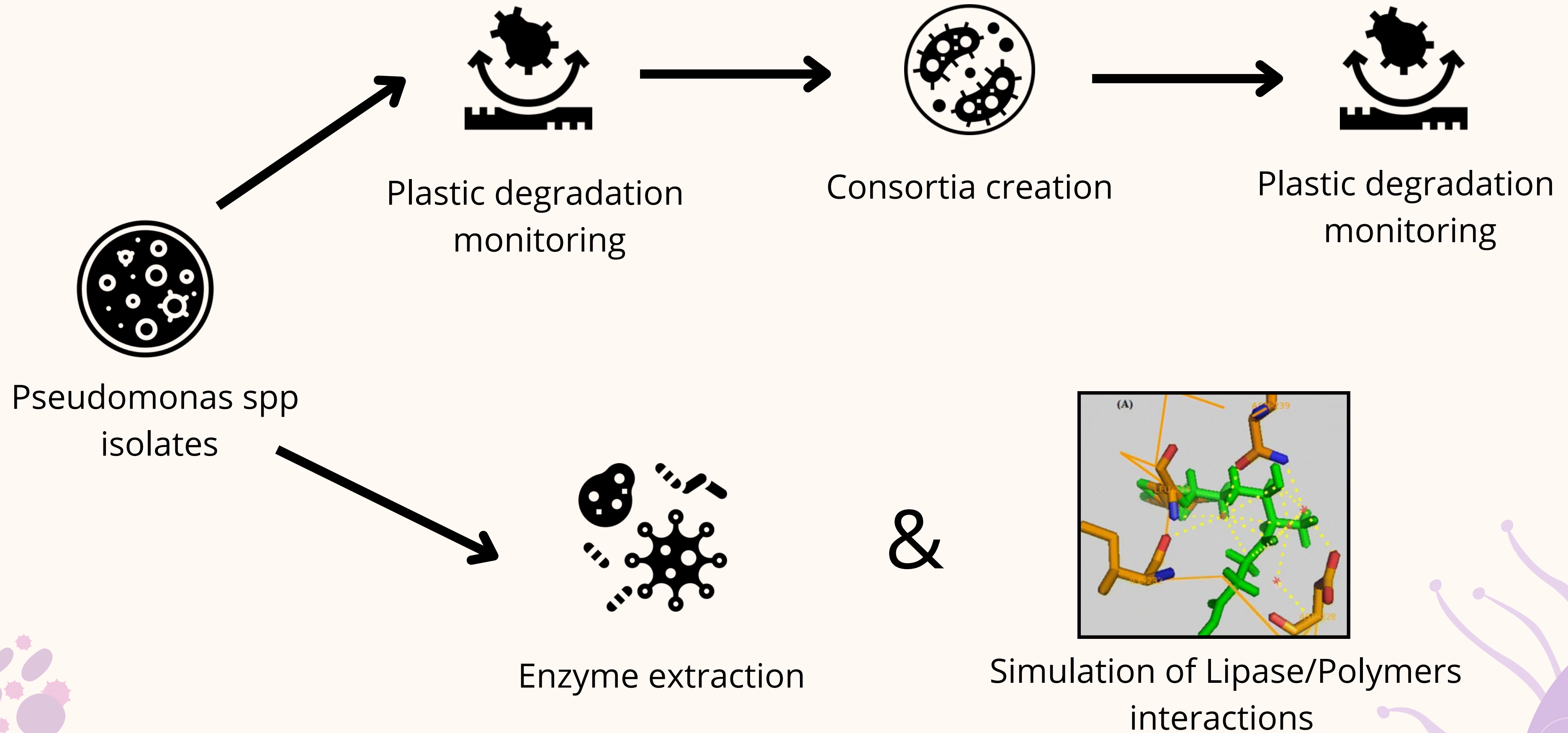
Main goal : Study the bacterial degradation of plastics in contaminated soil & water samples

- Isolate and study the degradation behaviour of specific bacteria
- Formulate and study the degradation behaviour of a bacterial consortia
- Get an understanding of the molecular mechanisms of bacterial plastic degradation

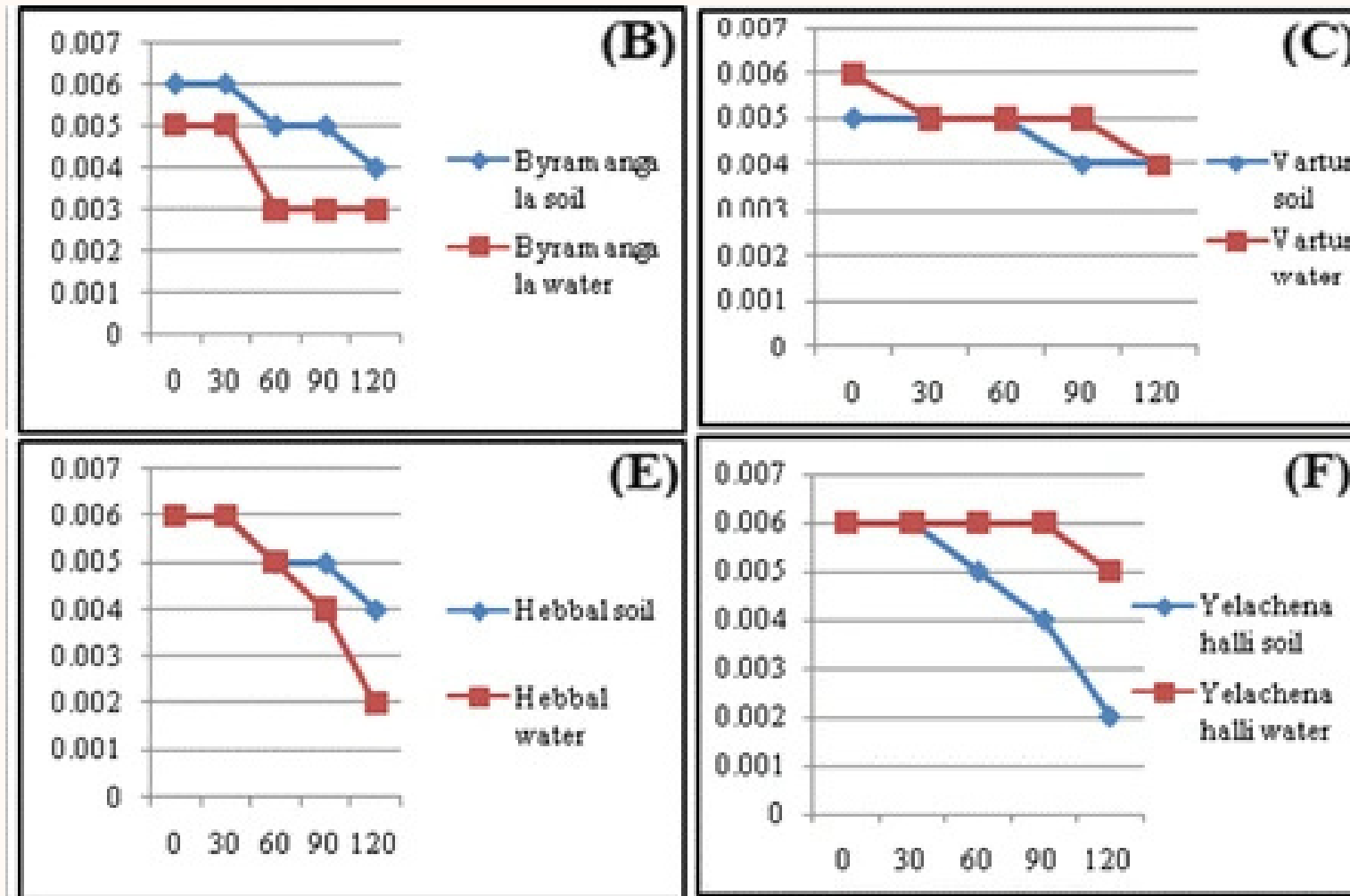
Method I



Method II



Results



Screening:

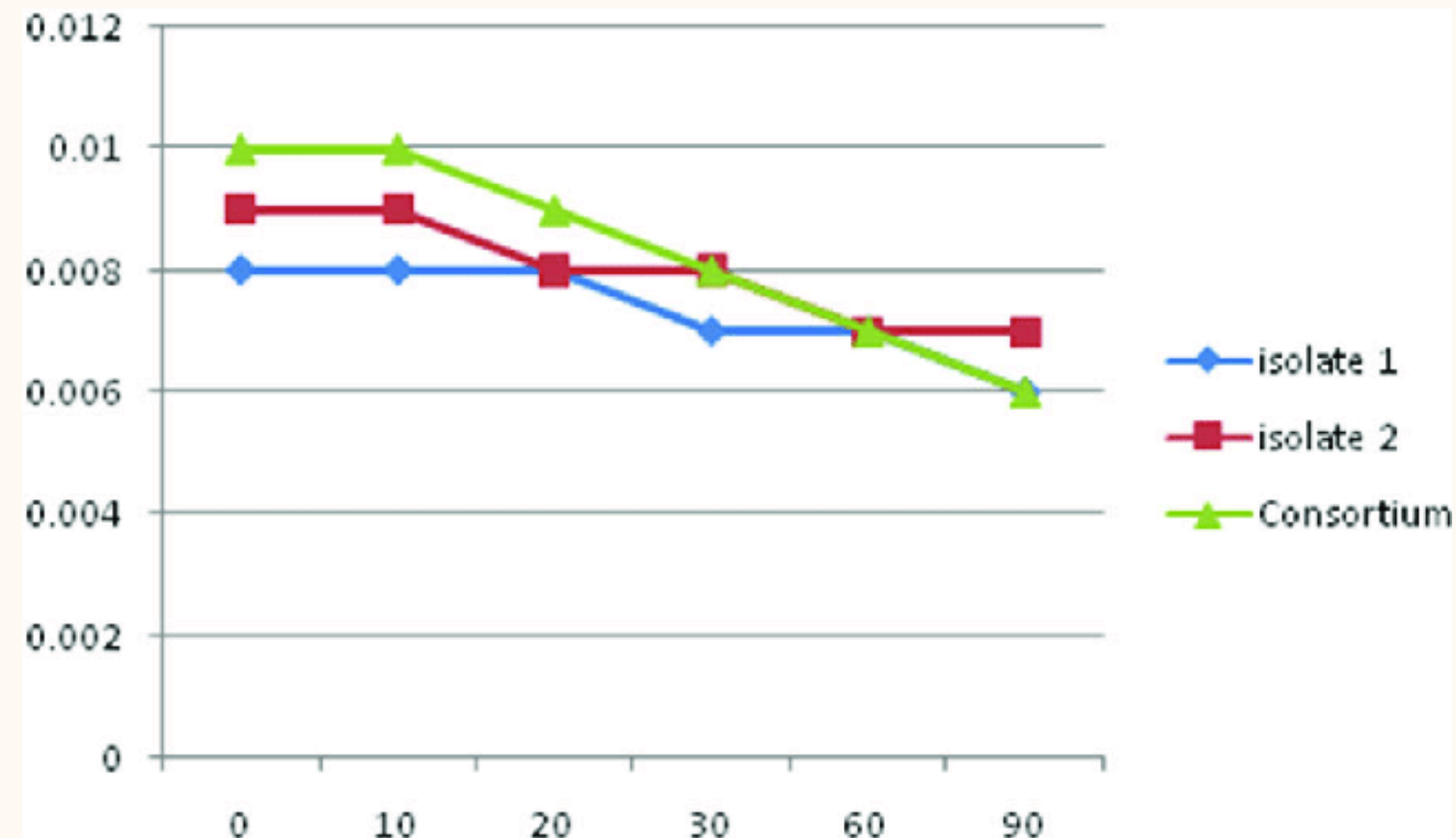
Pseudomonas spp isolated from samples
Lipase presence extracted from the colonies

Plastic degradation

- Dependant of isolates and locations
- Up to 35-40% of plastic degradation

Biodegradation of plastic from the selected by one isolate. With time (in days) along the x-axis and weight the plastic (in gram) along the y-axis

Results



Comparative analysis of efficiency of consortium over isolates alone. With time (in days) along the x-axis and weight of the plastic (in gram) along the y-axis.

Comparison:

- Isolates faster than the known plastic degrading strains
- Consortium of two bacteria faster than the isolates alone

Limitation and conclusion



Limitation

- Focus on only one strand of bacteria
- Experience on short periode of time
- Lack of clarity on replicates and availablity of data

Conclusion

- Isolates of plastic degrading bacteria
 - Preliminary work to devlop new technologies
 - Hypothesis on the molecular mechanism of degradation
- 
- 

Main references



- Gram, H.C. "Über die isolierte Färbung der Schizomyceten in Schnitt- und Trockenpräparaten". Fortschritte der Medizin (in German). 2: 185–189 (1884).
 - Dey, R, "Platelet Adherence by Oral Streptococci" (2016).
 - Skariyachan, S., Megha, M., Kini, M.N. et al., "Selection and screening of microbial consortia for efficient and ecofriendly degradation of plastic garbage collected from urban and rural areas of Bangalore, India." Environ Monit Assess 187, 4174 (2015).
 - WHO Bacterial Priority Pathogens List, 2024: bacterial pathogens of public health importance to guide research, development and strategies to prevent and control antimicrobial resistance. Geneva: World Health Organization; 2024.
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