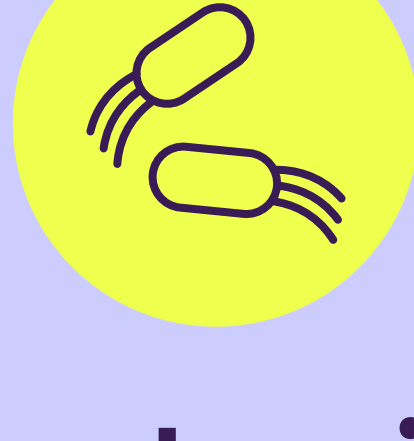
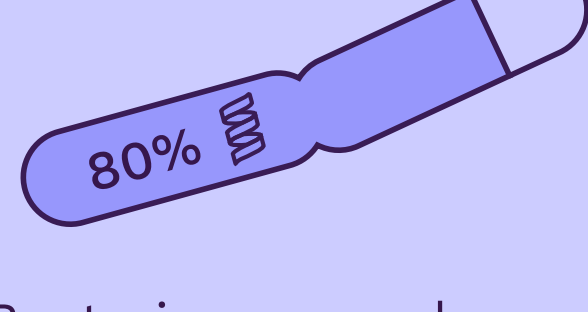


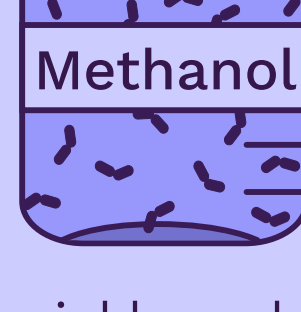
Sustainable Protein Production with Methylo trophic Bacteria



Why bacteria for protein production?



Bacteria can produce up to 80% protein in their biomass



They grow quickly and use simple, renewable carbon sources (e.g., green methanol)

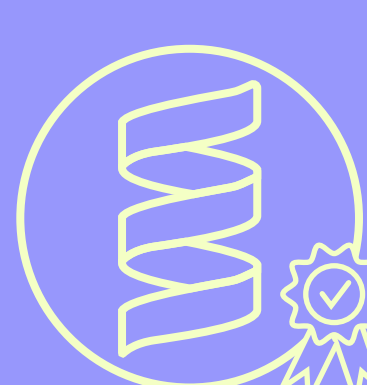
Advantages:



No seasonality



No need for arable land or large water volumes

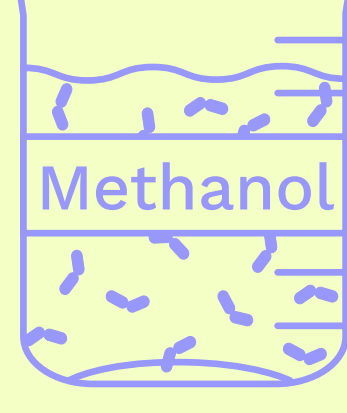


High-quality, sustainable protein production

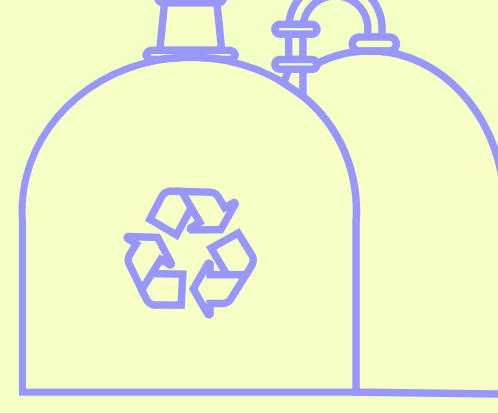


Why do we use methylo trophic bacteria in InnoProtein?

Ecological substrates



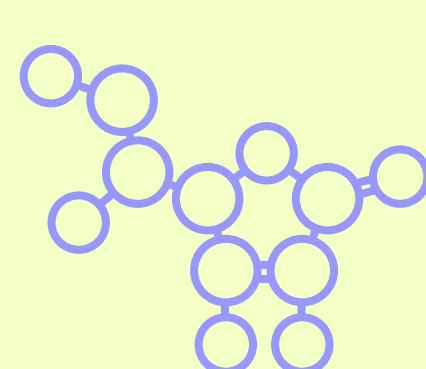
These bacteria can grow on C1 carbon substrates like methanol or methane



Carbon sources come from renewables (e.g., biogas, solid waste, or CO₂ that can be converted into methanol)

Other applications

Methylo trophic bacteria are also microbial factories that can produce:



Proteins and amino acids



Pigments with antioxidant properties (carotenoids)



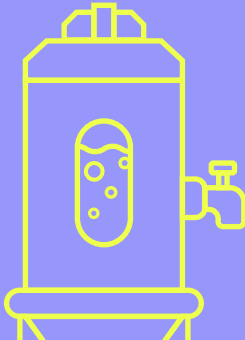
Biodegradable plastics (polyhydroxyalkanoates)



The process: How bacterial proteins are produced

1 Fermentation

Bacteria are grown using methanol + mineral compounds

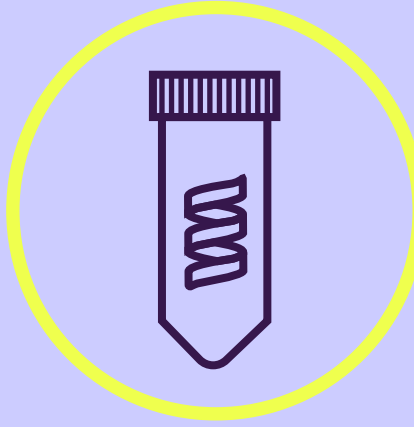


2 Separation

The final fermentation broth contains biomass and a liquid fraction which get separated. The wet biomass is used for protein extraction and purification

3 Recycling

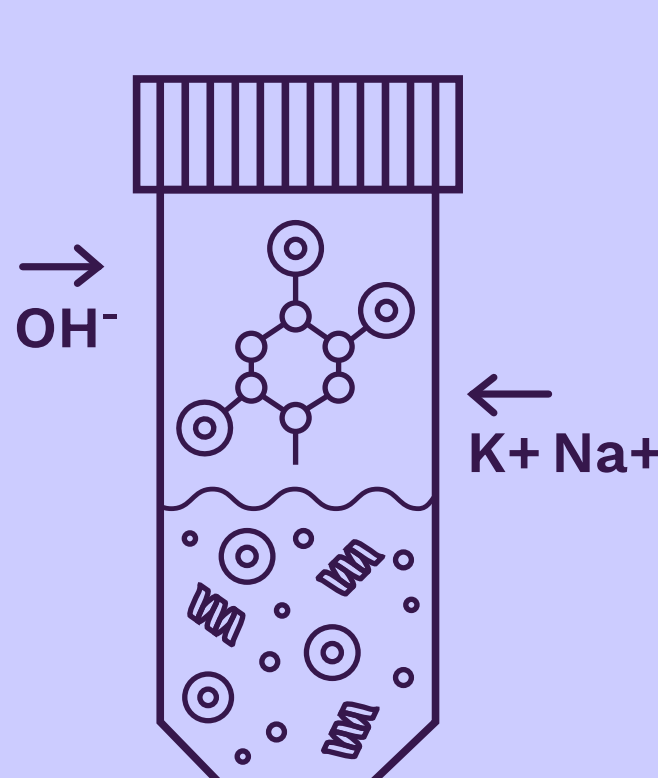
The liquid fraction is recycled to reduce waste and water consumption, following a circular strategy



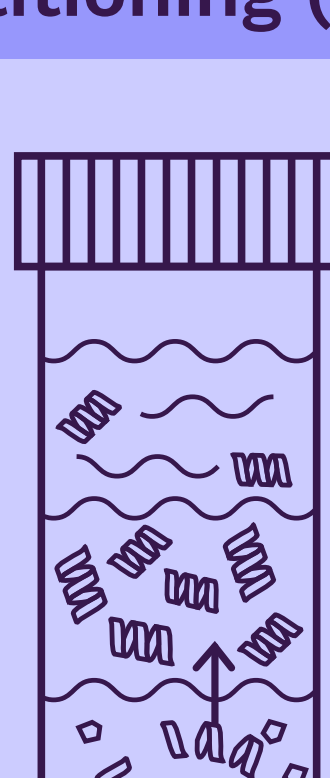
Protein extraction and purification

Greener technologies being tested include:

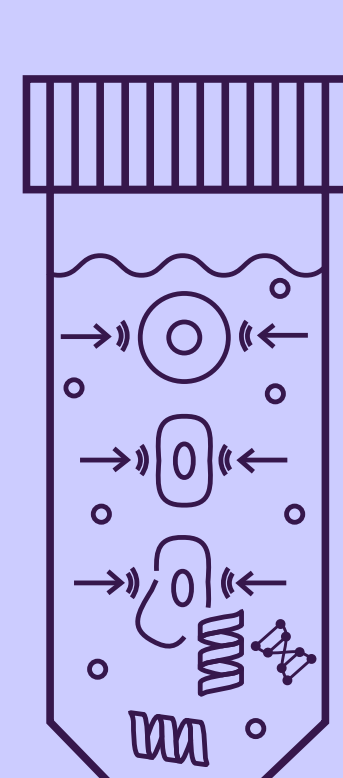
Alkaline Autolysis



Three-Phase Partitioning (TPP)



Homogenization



Towards New Food Solutions

Extracted and purified bacterial proteins are ready for food applications.