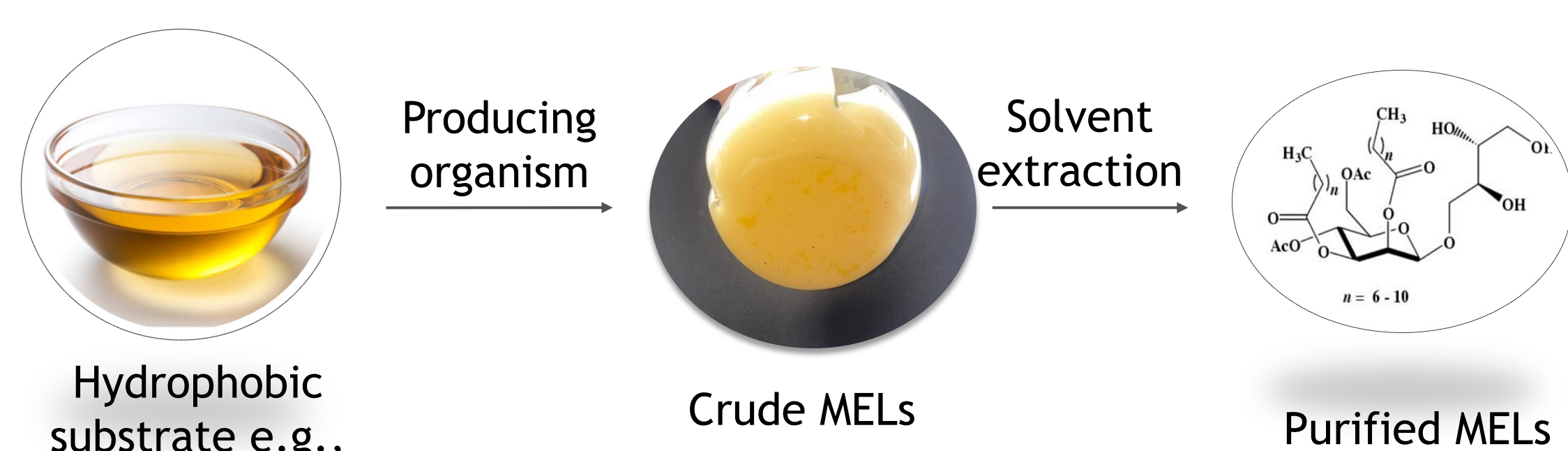


Introduction and background



Mannosylerythritol lipids: A class of glycolipid biosurfactants composed of a hydrophilic mannosylerythritol head group and a fatty acid tail with excellent interfacial and biochemical properties

-Structure similar to Ceramides-a vital component of the skin barrier

-highly valued in cosmetics for their moisturizing and repair properties, as well as in pharmaceuticals for advanced formulations.

Producing organisms: *Moesziomyces sp.*, *Ustilago sp.*

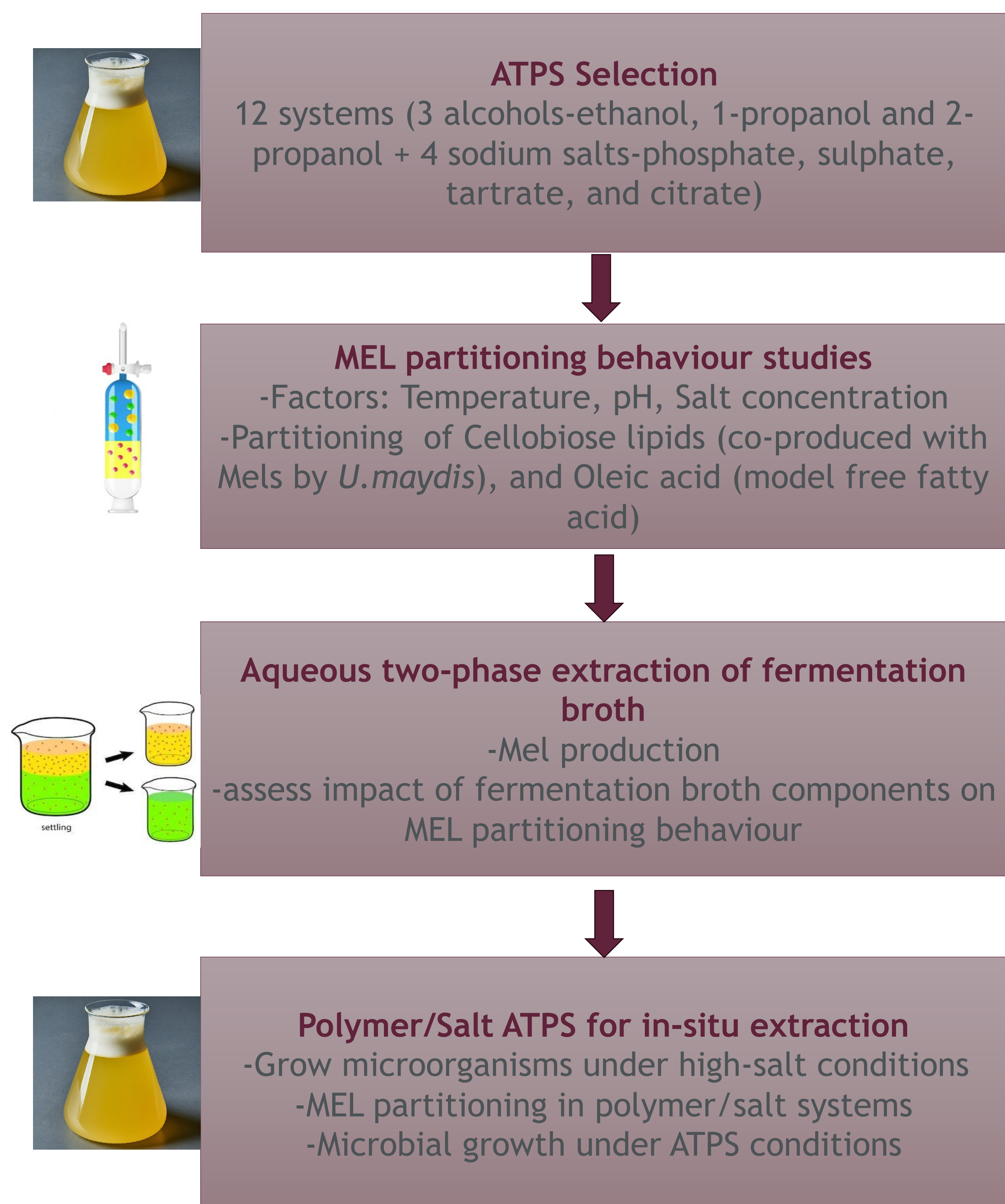
Substrates: Hydrophobic e.g. soybean oil-High fermentation yields (165g/L), Low product purity, hydrophilic e.g. sucrose, lower fermentation

Downstream processing Technique : Solvent extraction, foam fractionation, chromatography

Challenges: large volumes of organic solvents required, low recoveries, environmental impact and biocompatibility

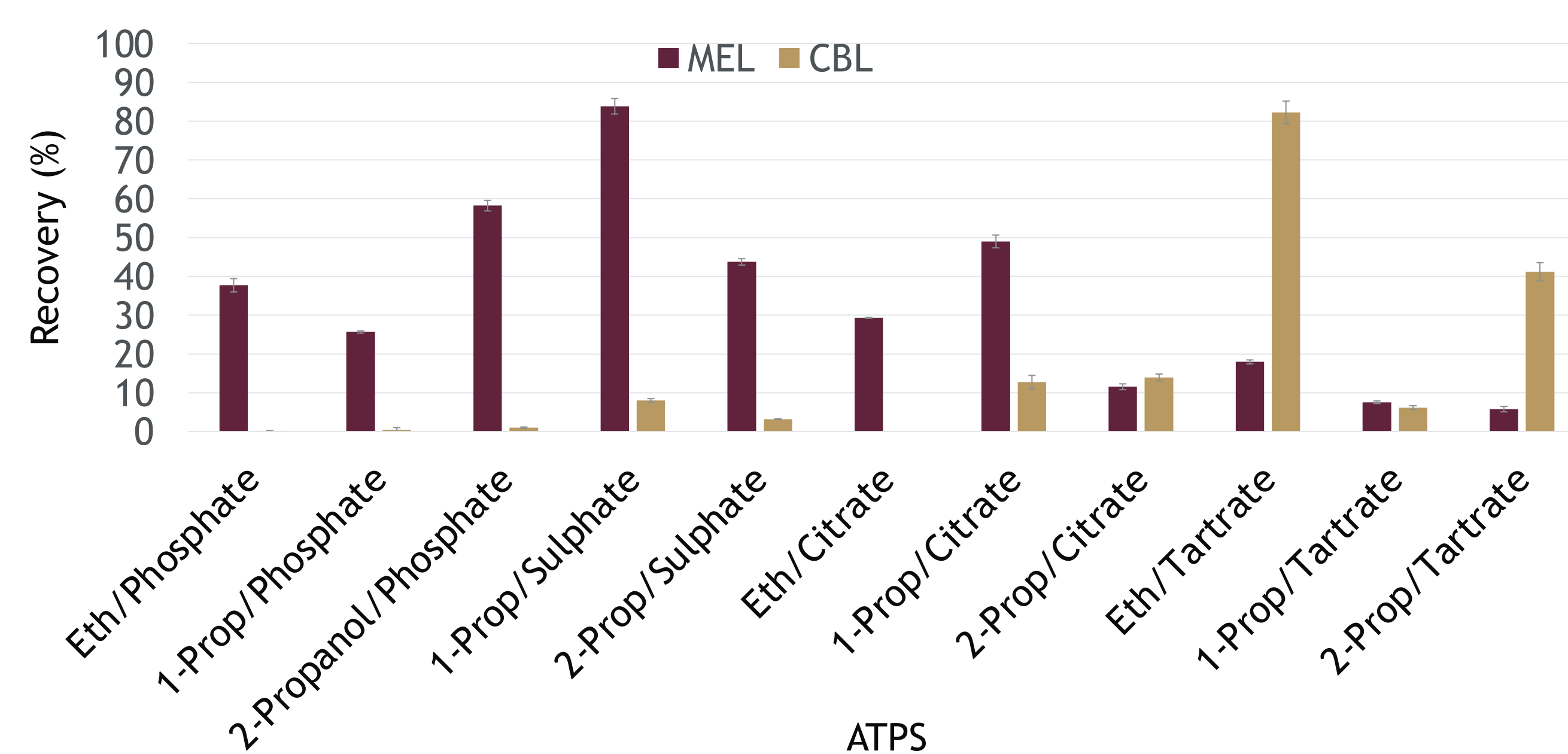
Project Aim: To develop a recovery process for MELs by investigating their partitioning behavior in aqueous two phase systems

Methodology

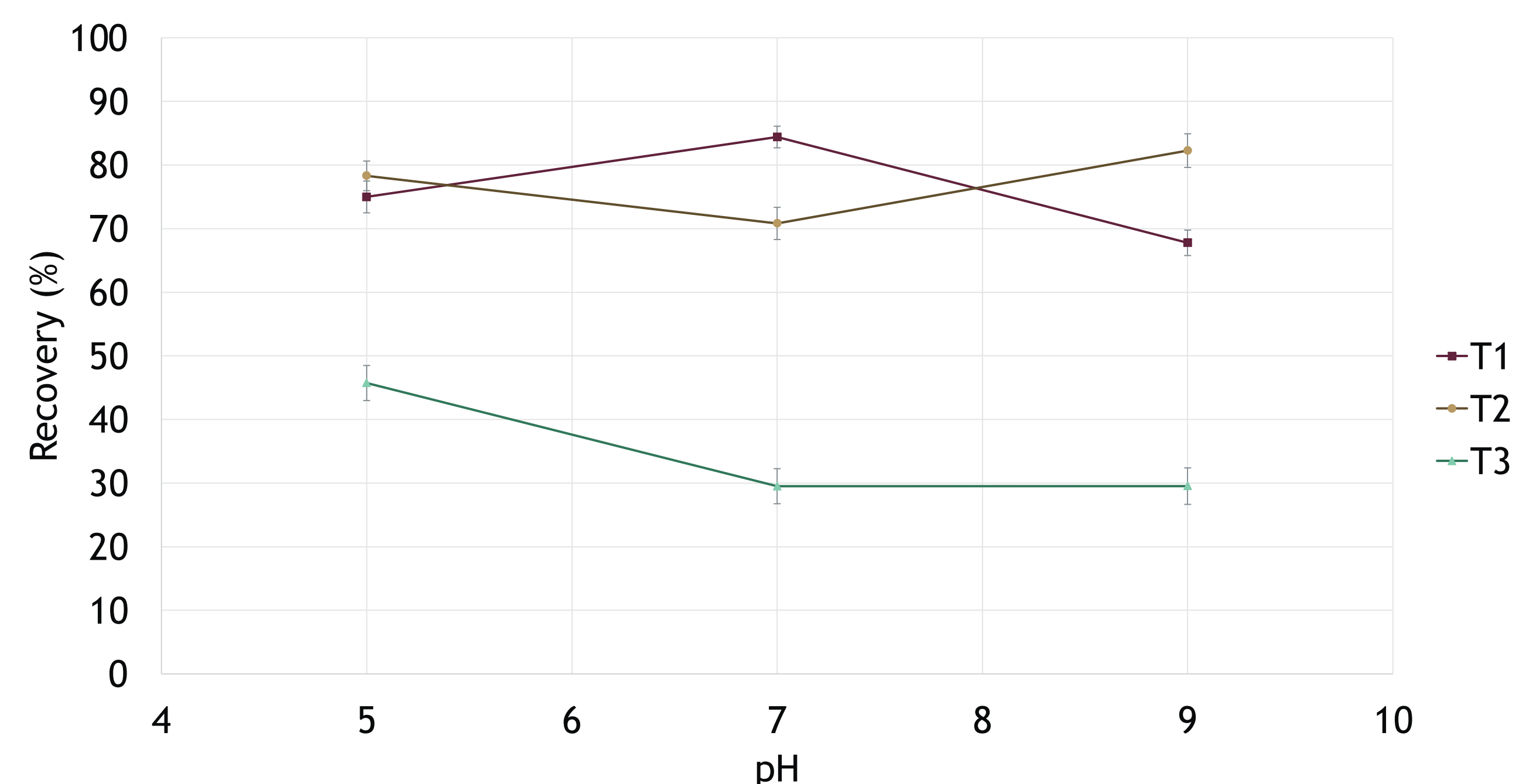


Results

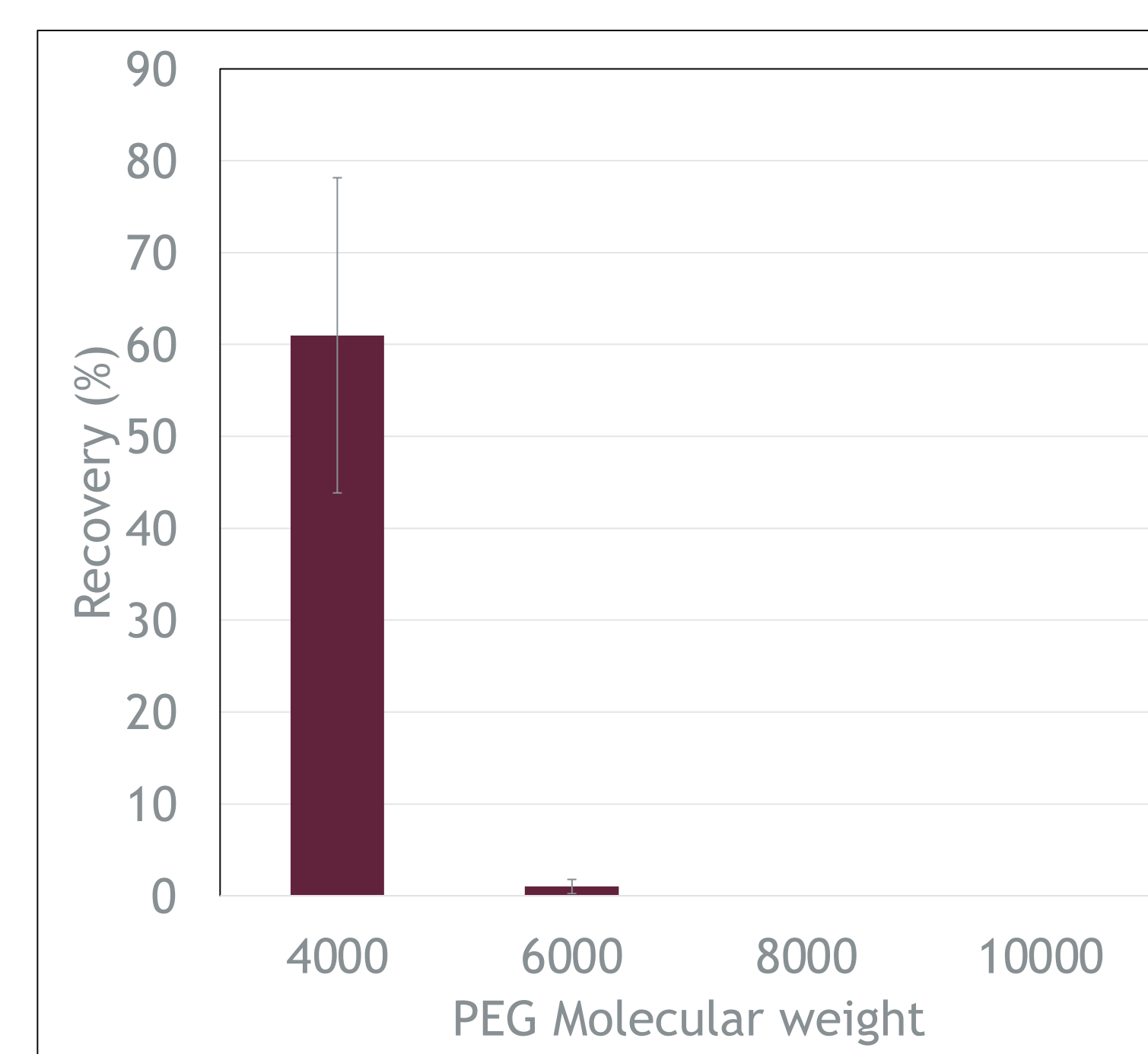
- ATPE system selection: 1-propanol/sulphate system had highest recovery of 83,8%
- MELs preferentially partitioned into the top alcohol-rich phase or settled at the interface



- Effect of pH and temperature on recovery of MEL in 1-Propanol/salt ATPS:



- Recovery of MELs using different MW of PEG/phosphate system.



Conclusion

- 1-Propanol/sulfate ATPS selectively recovers MELs from fermentation broth.
- Ethanol/tartrate ATPS is effective for selective CBL recovery.
- PEG-salt systems show low MEL recovery, with PEG 4000/phosphate performing best.