

Medium optimisation for the production of a recombinant food protein in *Yarrowia lipolytica*, towards economic feasibility at industrial scale

Introduction

Increasing need of dietary proteins
Insufficient conventional production method

➤ Precision Fermentation

P. pastoris and *S. cerevisiae* widely studied

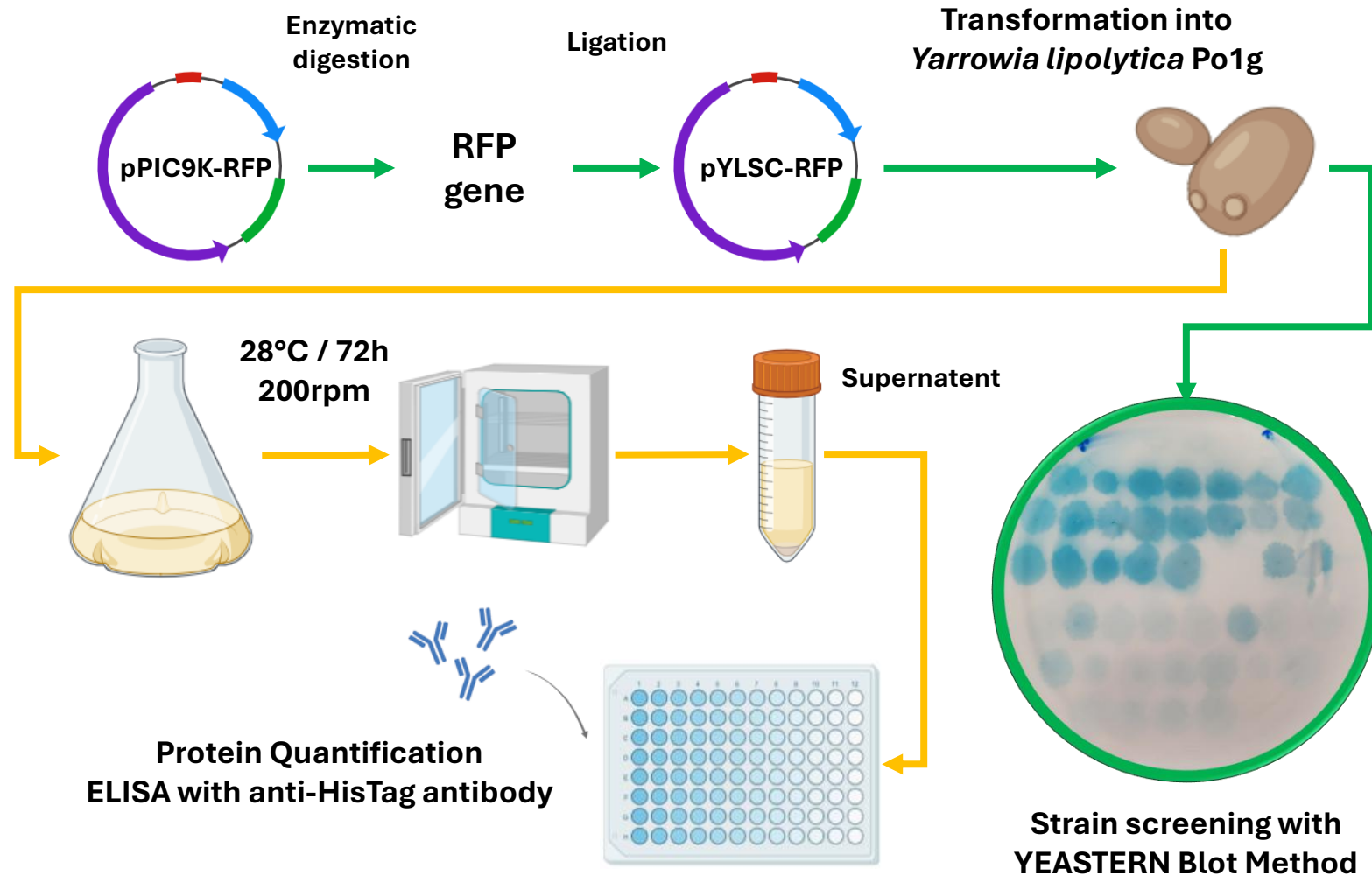
➤ *Yarrowia lipolytica* for a new model
➤ Adapted for food production

Mostly studied in rich organic media

➤ Present batch to batch variability
➤ Expensive for industrial production

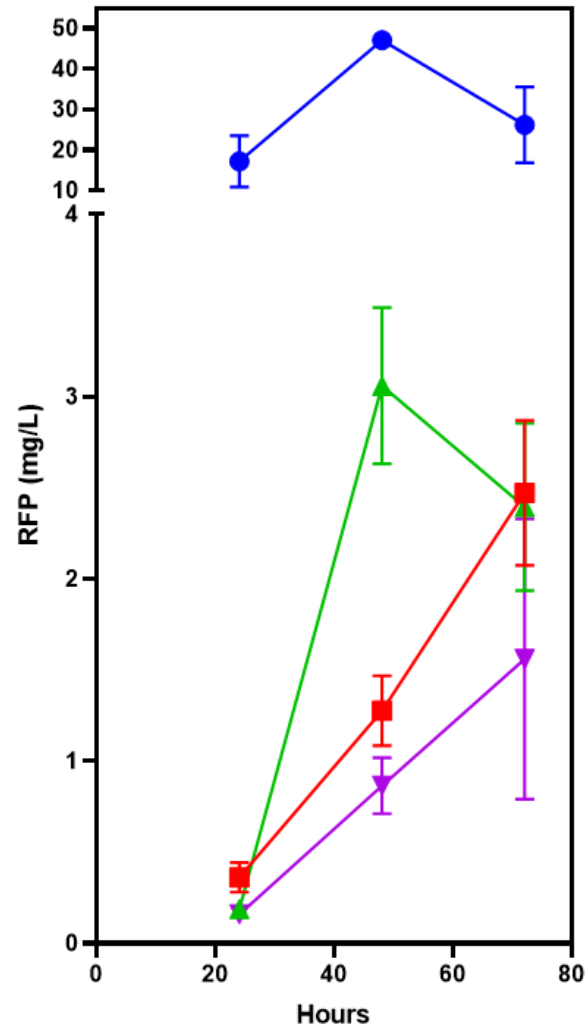
Can mineral-defined media offer a cost-effective alternative for heterologous protein production to consider industrial scale-up?

Materials & Methods



Medium optimisation for the production of a recombinant food protein in *Yarrowia lipolytica*, towards economic feasibility at industrial scale

Media Screening



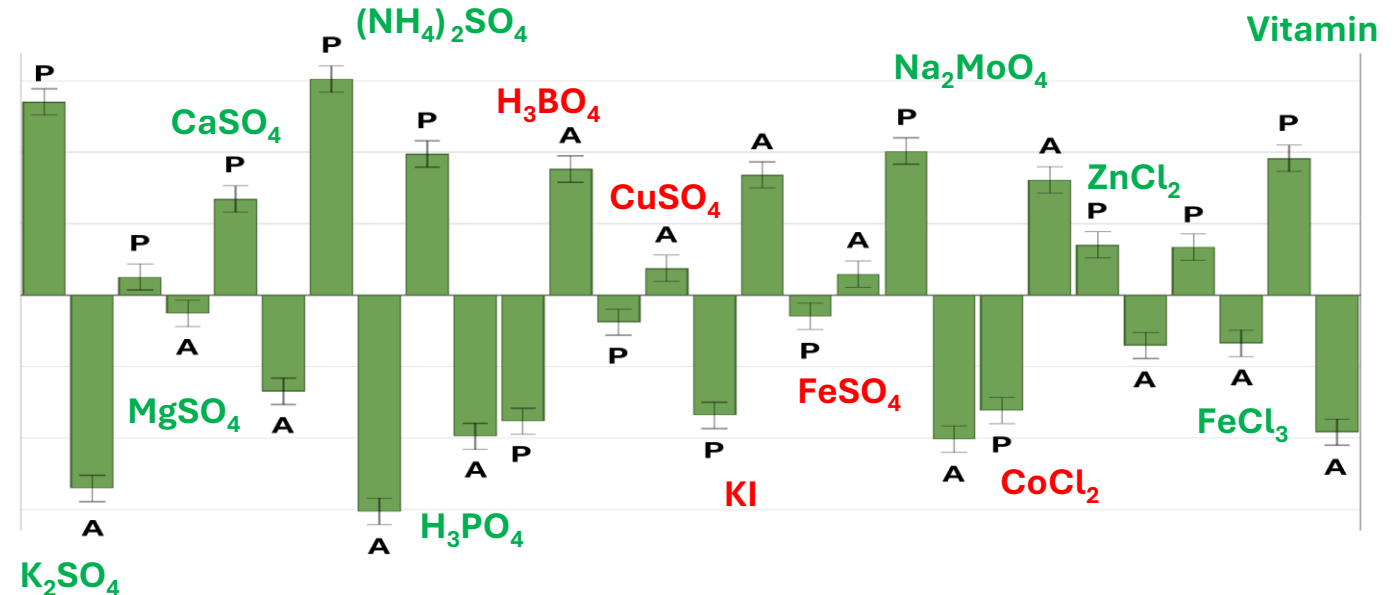
- YPD
 - YNB
 - SM4
 - Delft
- One organic medium:
 - YPD
 - 3 synthetic media:
 - YNB / SM4 / Delft
- At 48h
- YNB

 - 1.28 mg/L
 - 27 µg/L/h
- SM4

 - 3.06 mg/L
 - 64 µg/L/h

Medium Optimisation

- DOE
 - Plackett-Burman (A/P)



19 elements

9.54 €/L

11 elements

4.82 €/L