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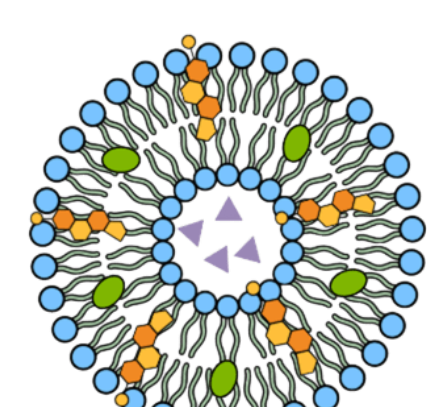
INTRODUCTION

Chronic wounds challenge

- Chronic inflammation
- Oxidative stress
- High risk of infection

Novel approach

Thymus genus phytocompound + Berberis genus phytocompound



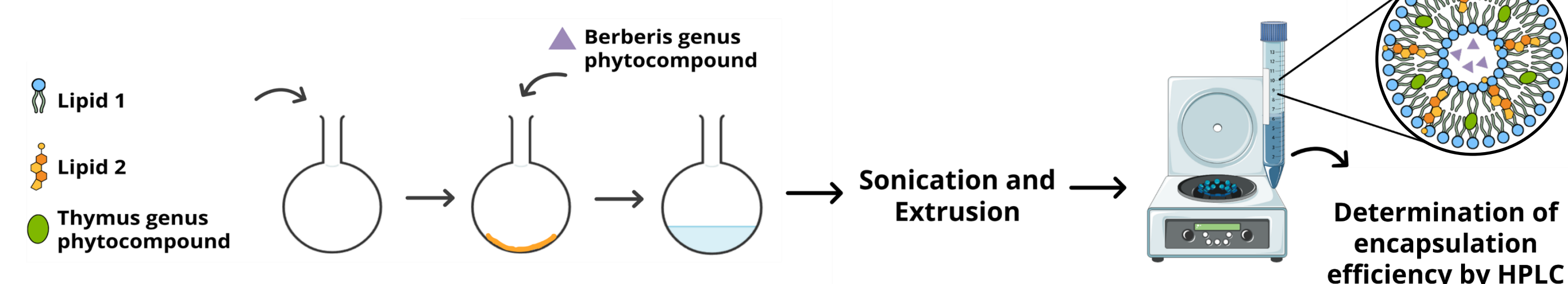
Co-encapsulation in liposomes

Outcomes

- ↓ Chronic inflammation
- ↓ Microbial burden
- ↓ Oxidative stress
- ↑ Wound healing

METHODOLOGY

Thin-film hydration method



Aim of study:

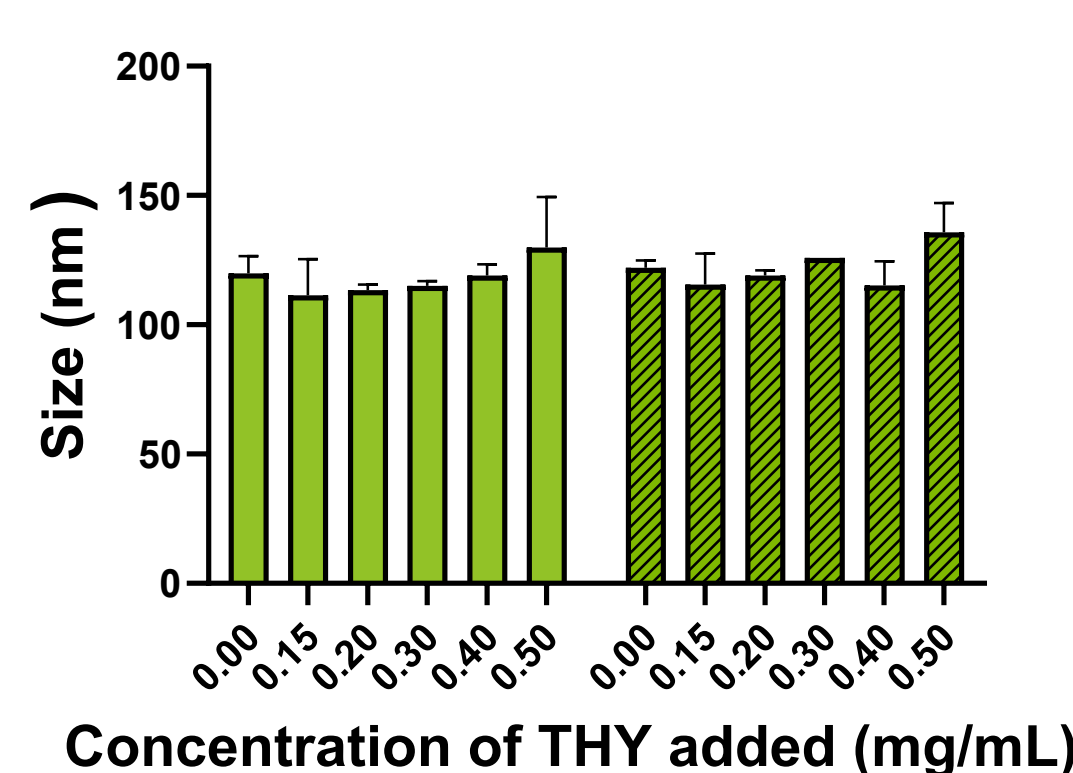
To develop a novel topical liposomal formulation co-encapsulating *Thymus* and *Berberis* phytocompounds as a multifunctional strategy for enhanced wound healing.



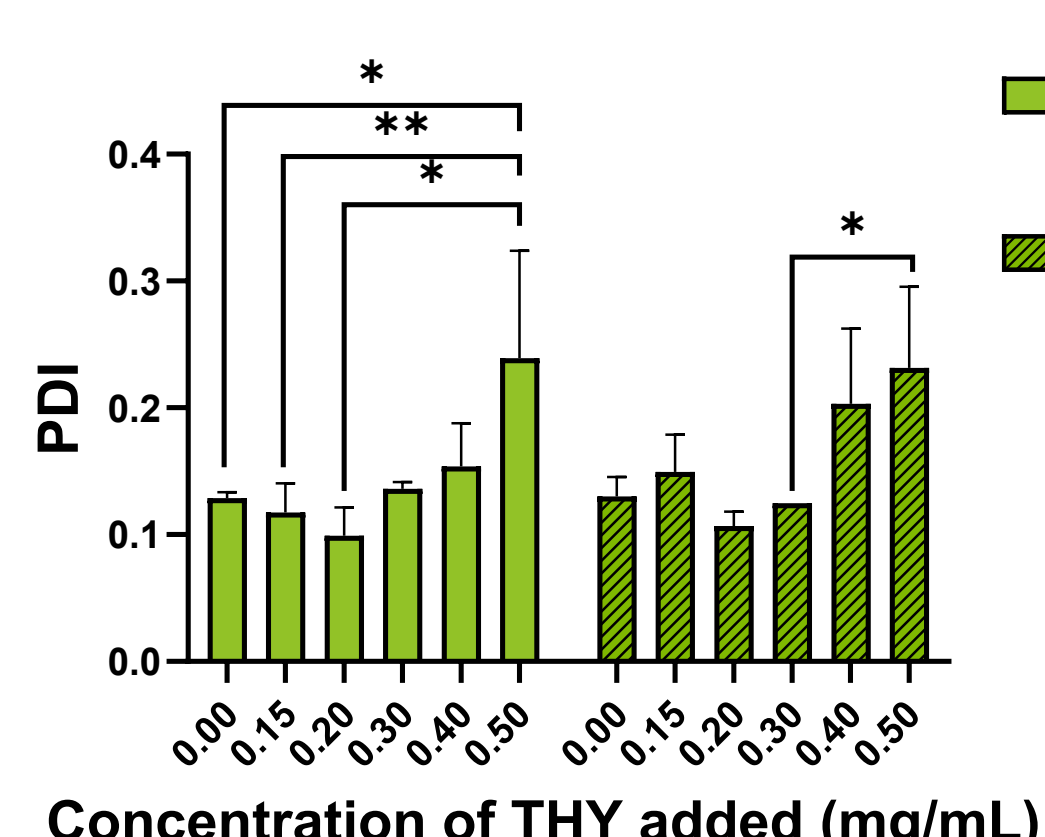
RESULTS & DISCUSSION

• Optimization of dual-loaded formulation

Particle size

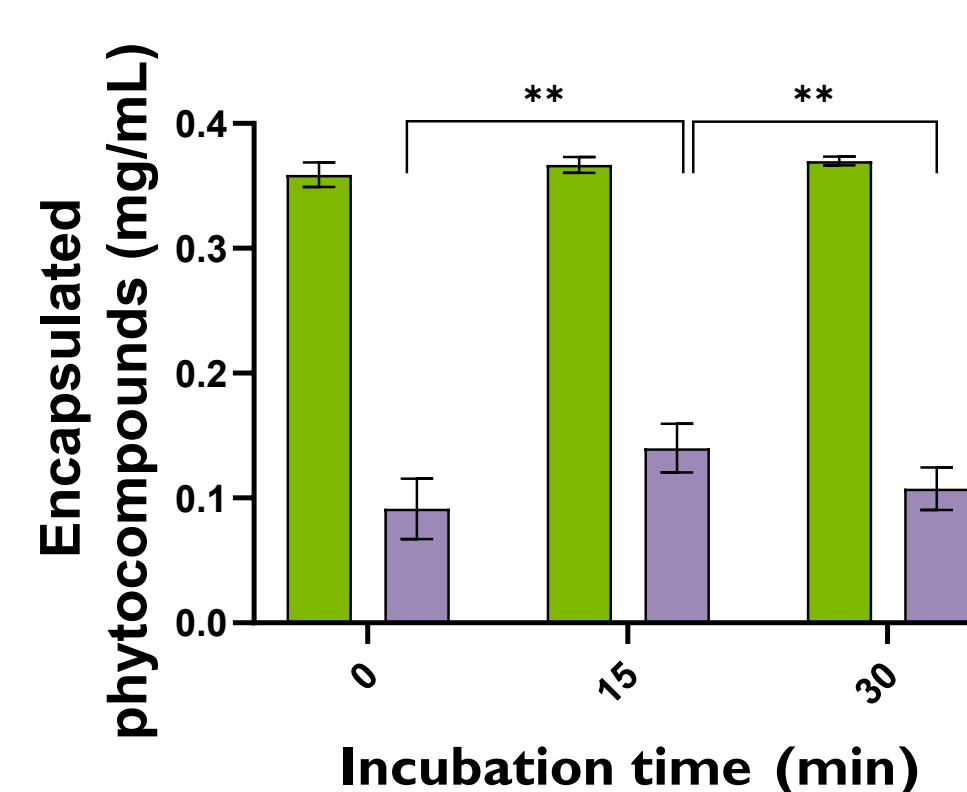


PDI

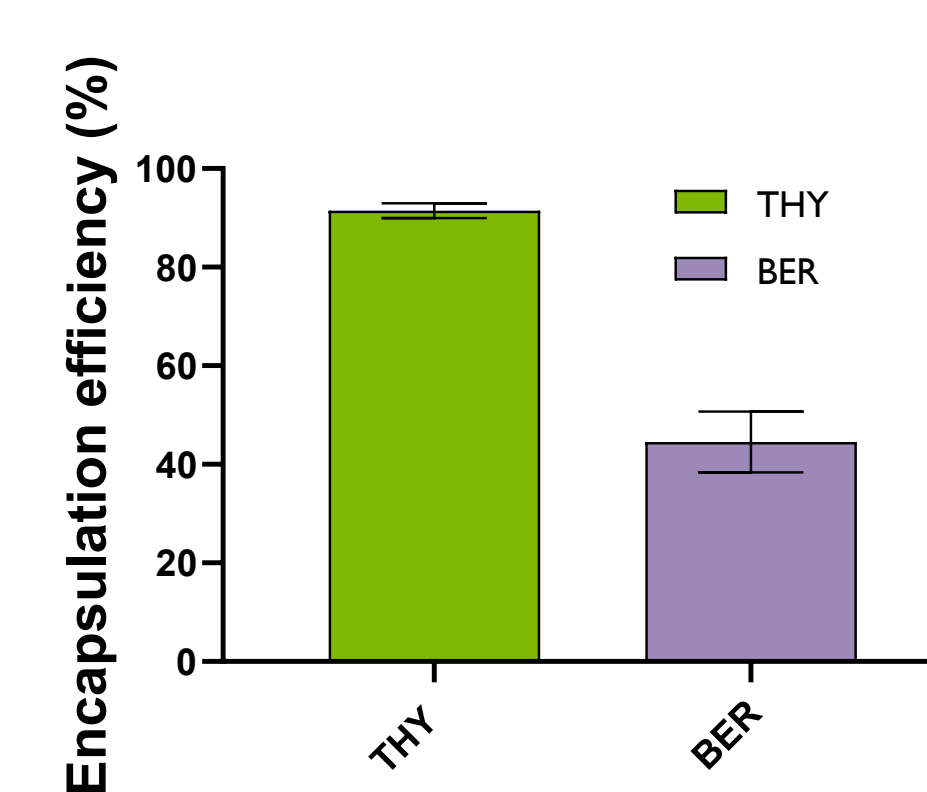
Lipid 1:Lipid 2 ratio (80:20)
Lipid 1:Lipid 2 ratio (70:30)

BER loading

Encapsulation efficiency

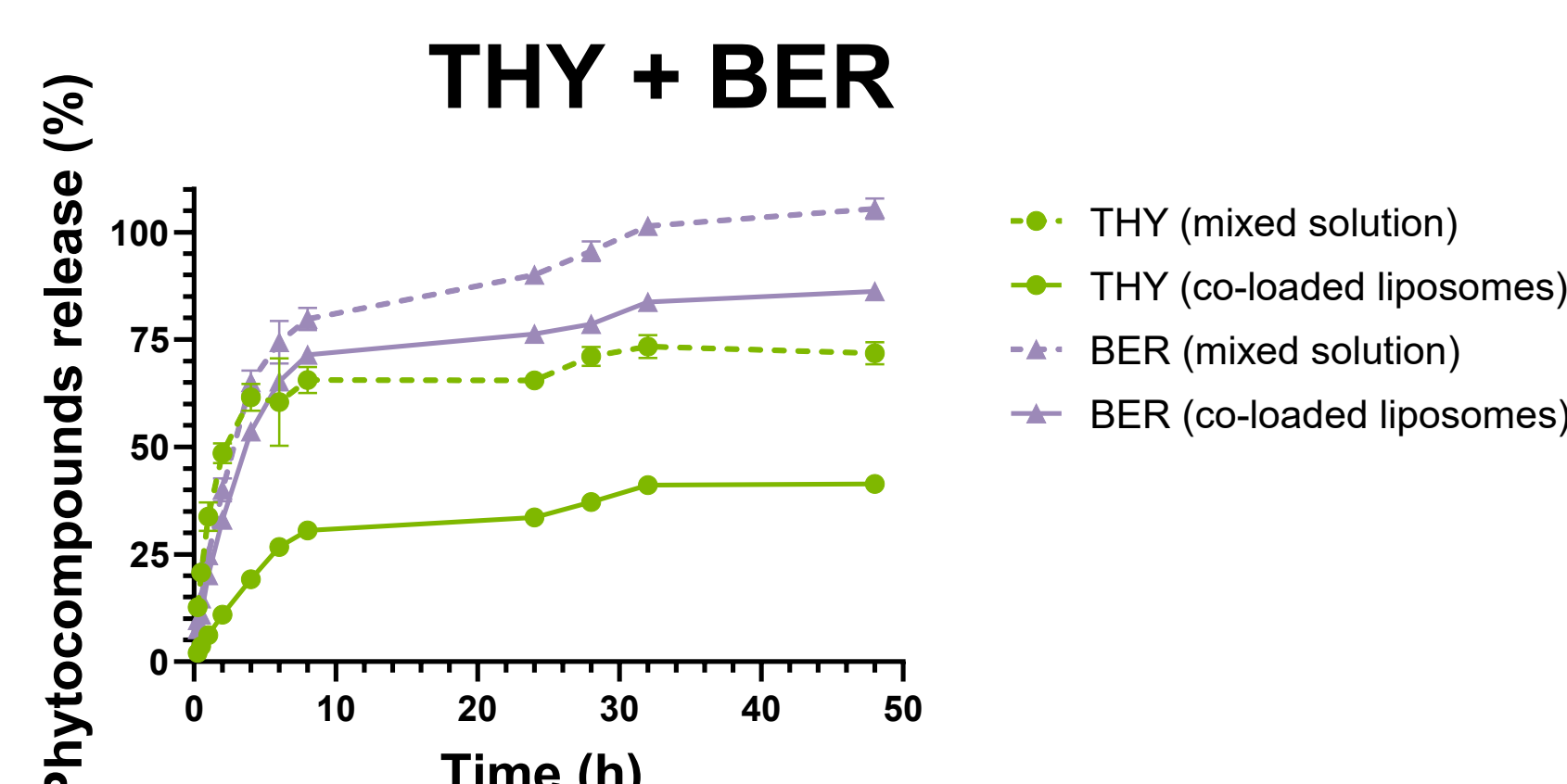
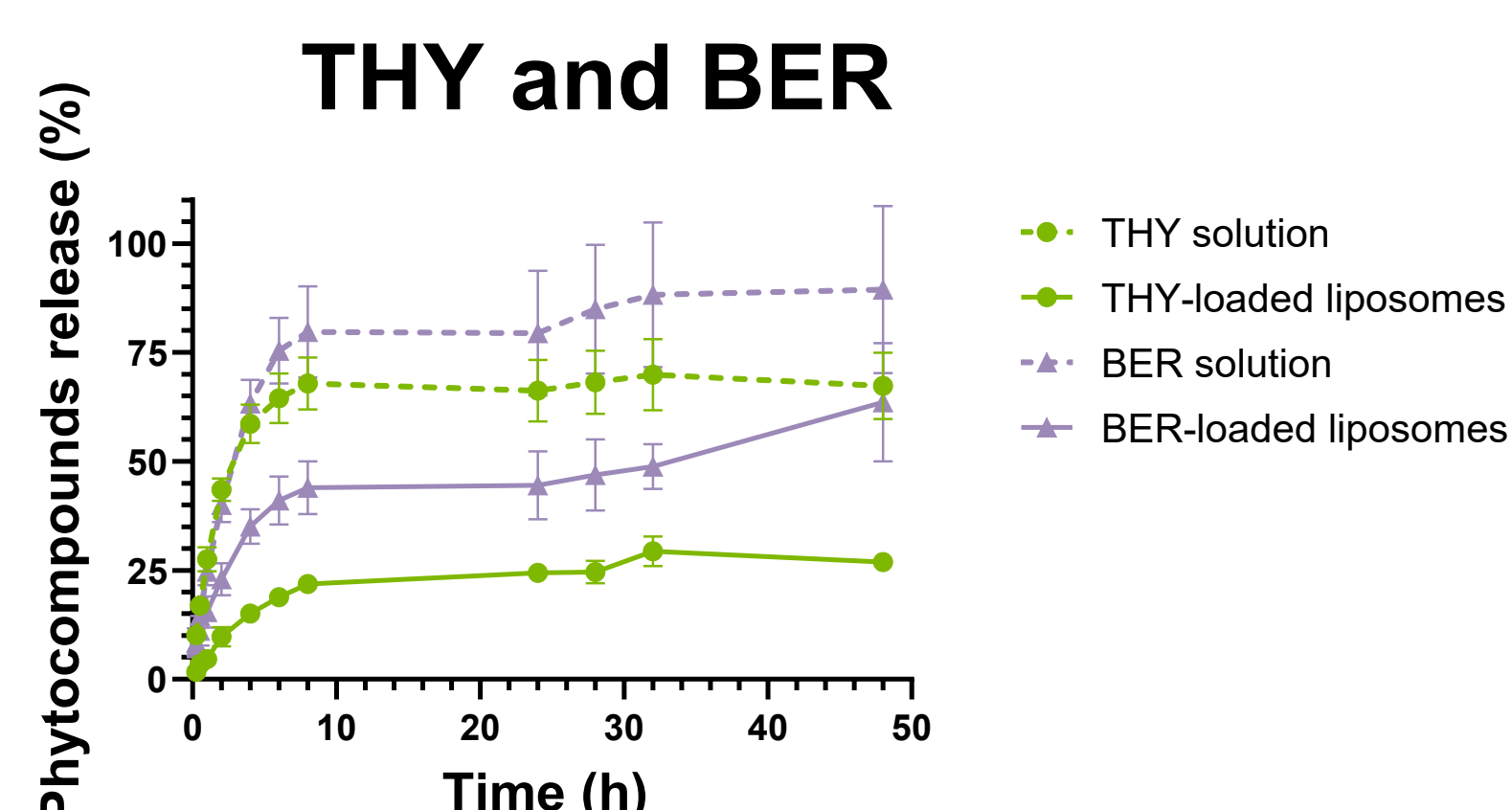


15 min

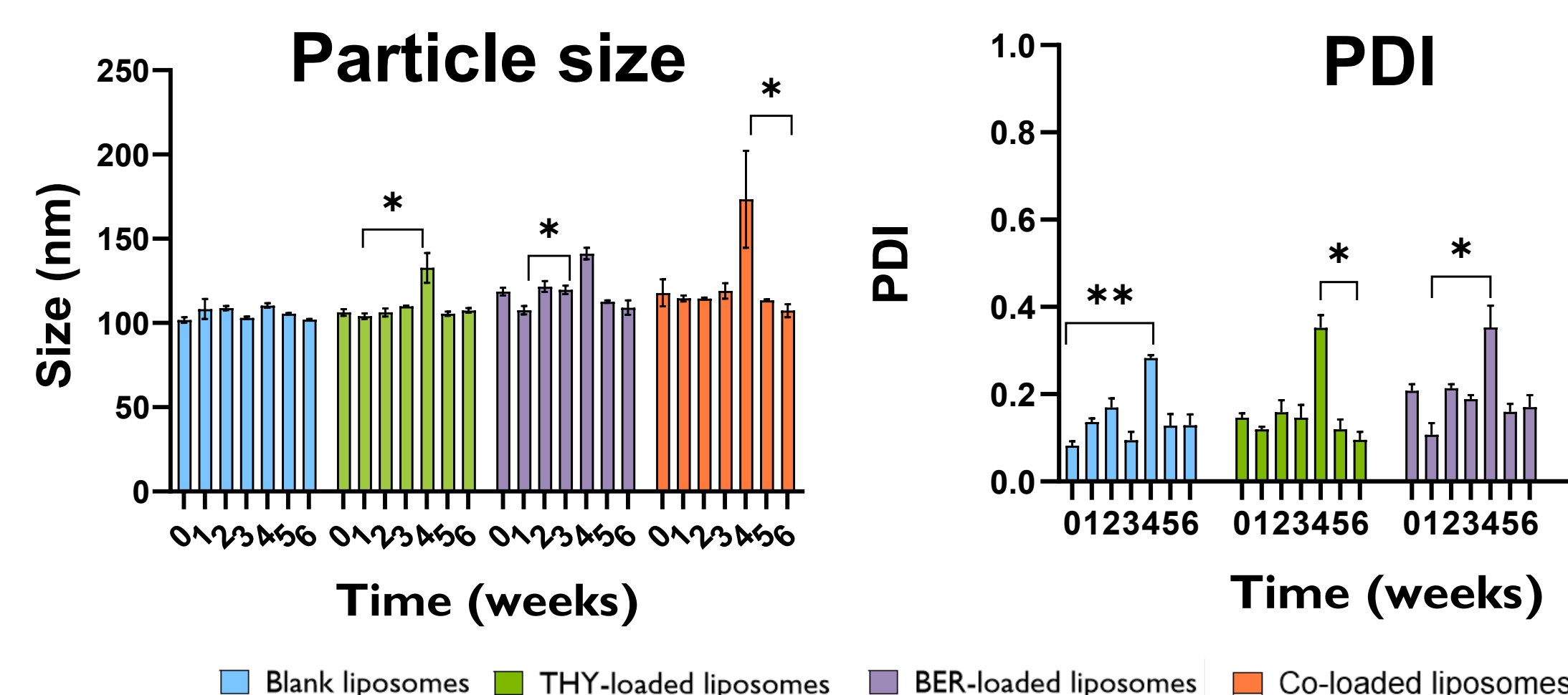


✓ Lipid 1:Lipid 2 (80:20) + 0.4 mg/mL THY selected for BER encapsulation

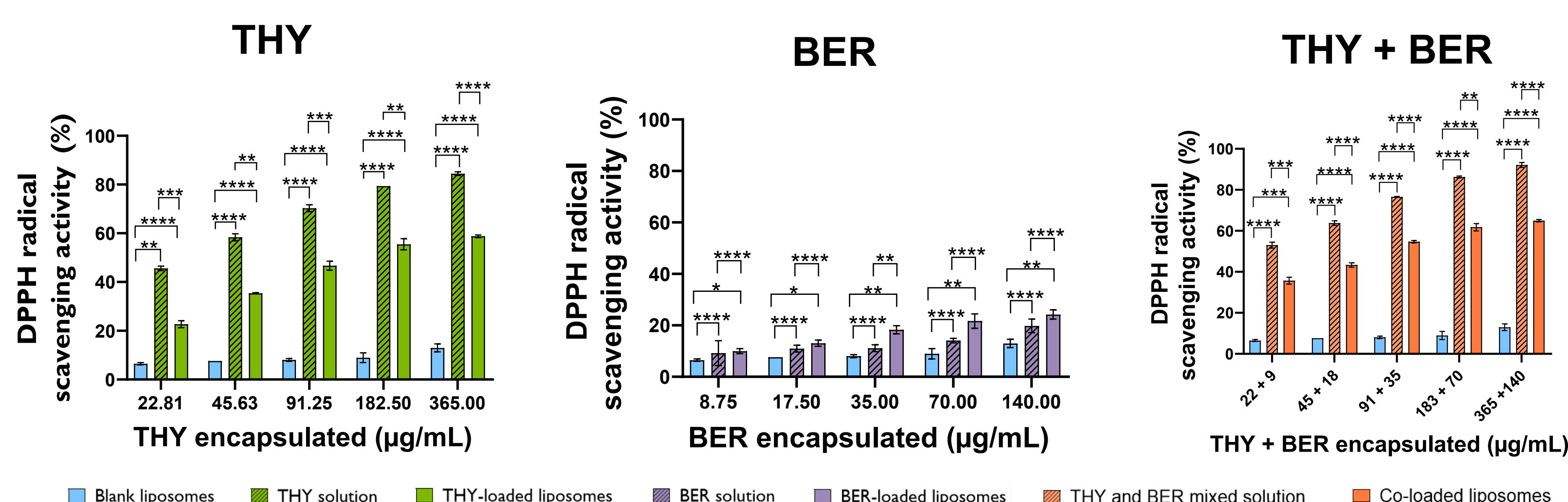
• Controlled release of phytocompounds



• Stability study (4 °C)



• Antioxidant activity (DPPH assay)



✓ High antioxidant activity, which is crucial for improved wound healing

CONCLUSION

Dual-loaded liposomes exhibited promising physicochemical and antioxidant properties for the controlled topical co-delivery of phytocompounds in chronic wounds.