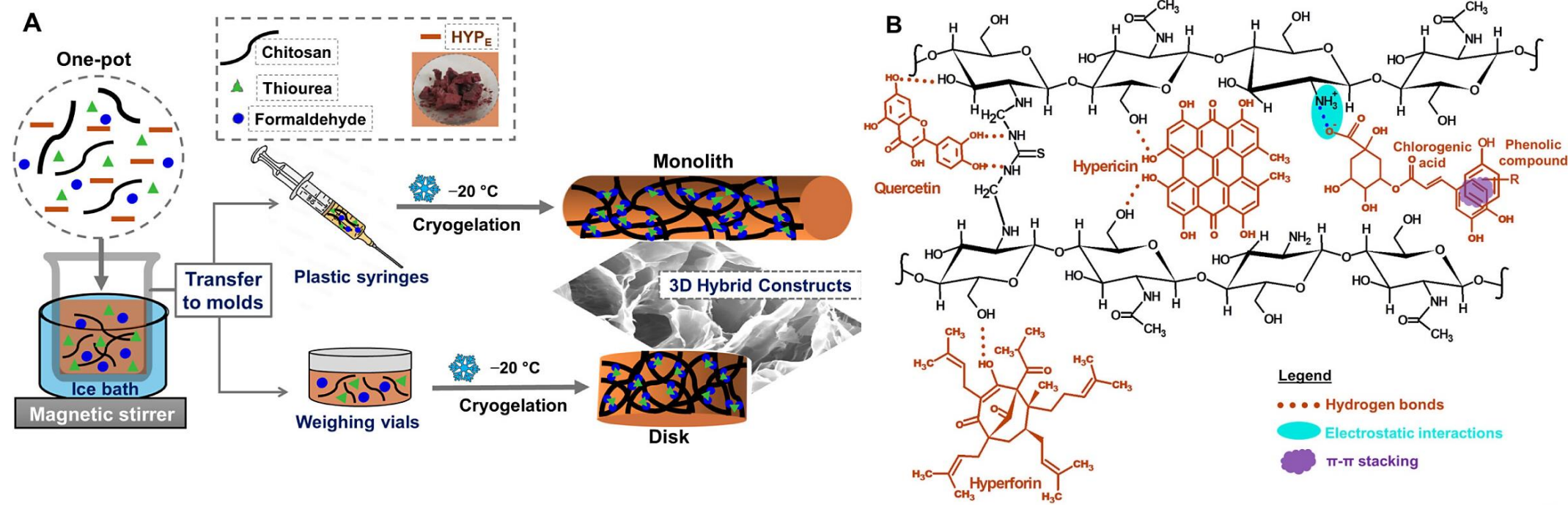


CRYOGENICALLY-STRUCTURED COMPOSITES BASED ON CHITOSAN DERIVATIVES

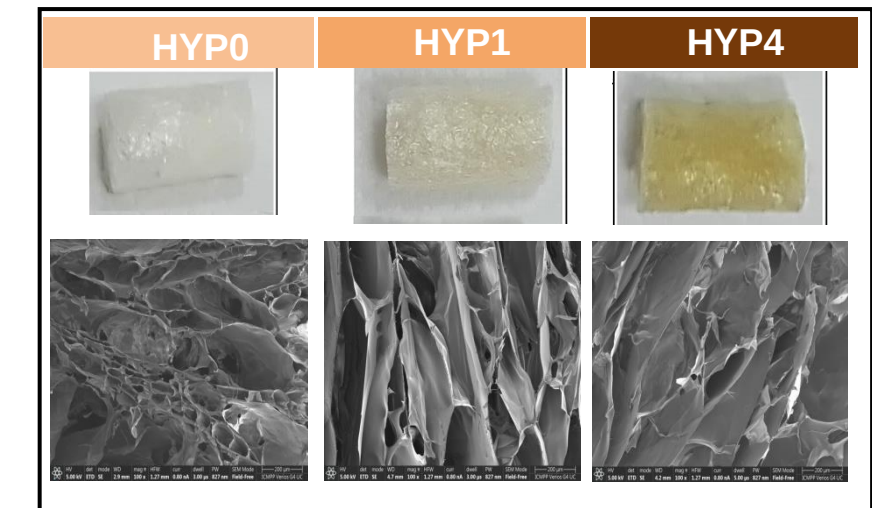
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Preparation strategy and possible interactions within matrix



Morphology

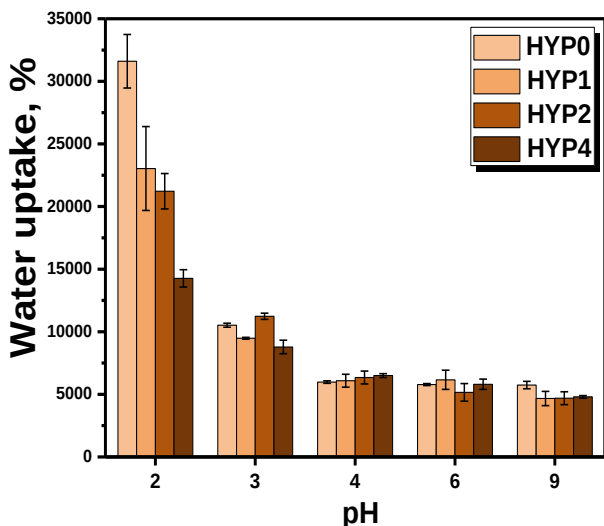


Cryogel on *Oxalis* flowers

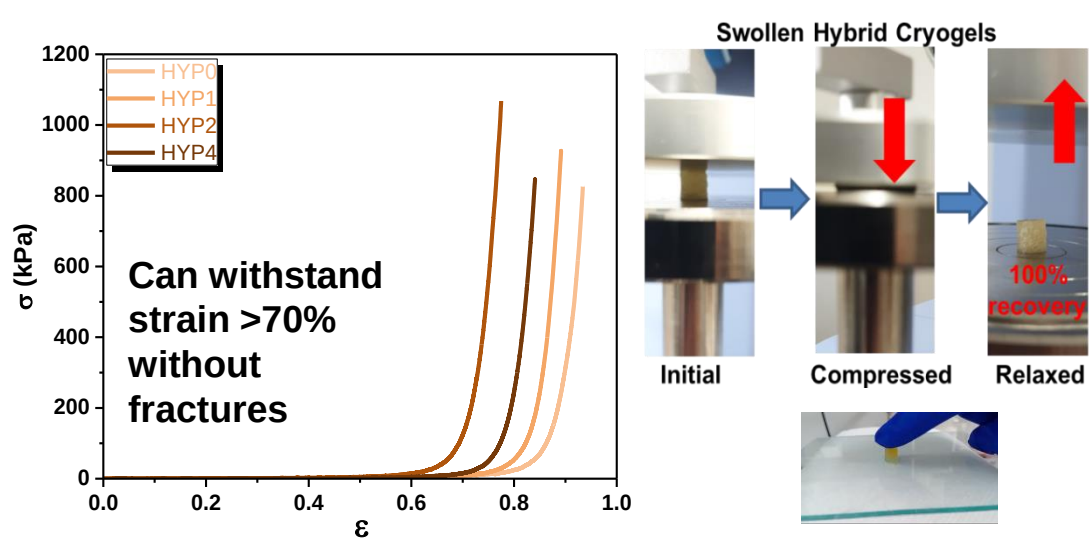


ultralight weight

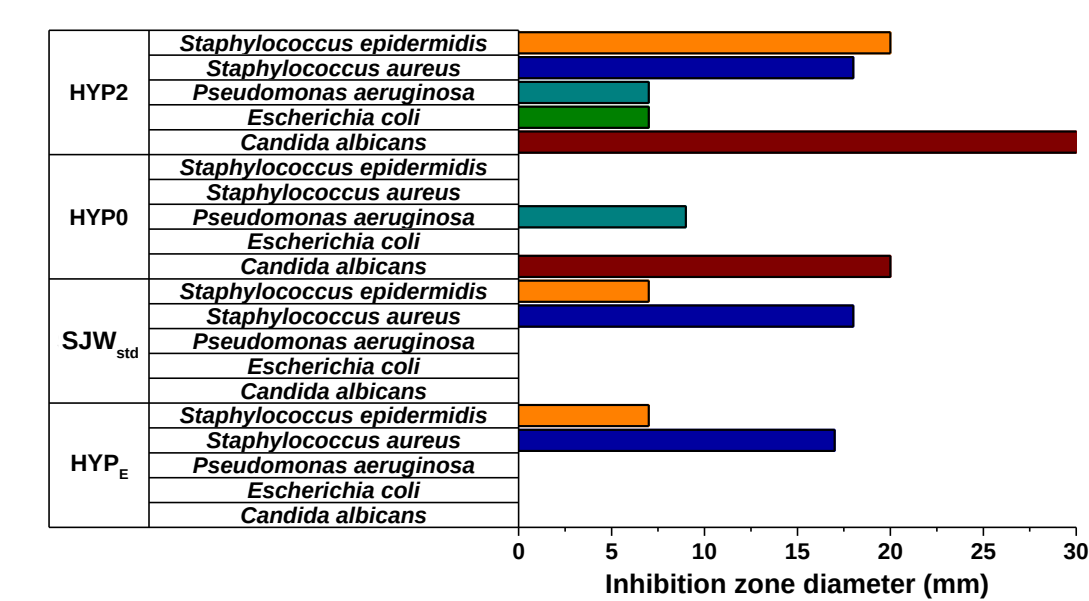
Water uptake capacity



Mechanical properties



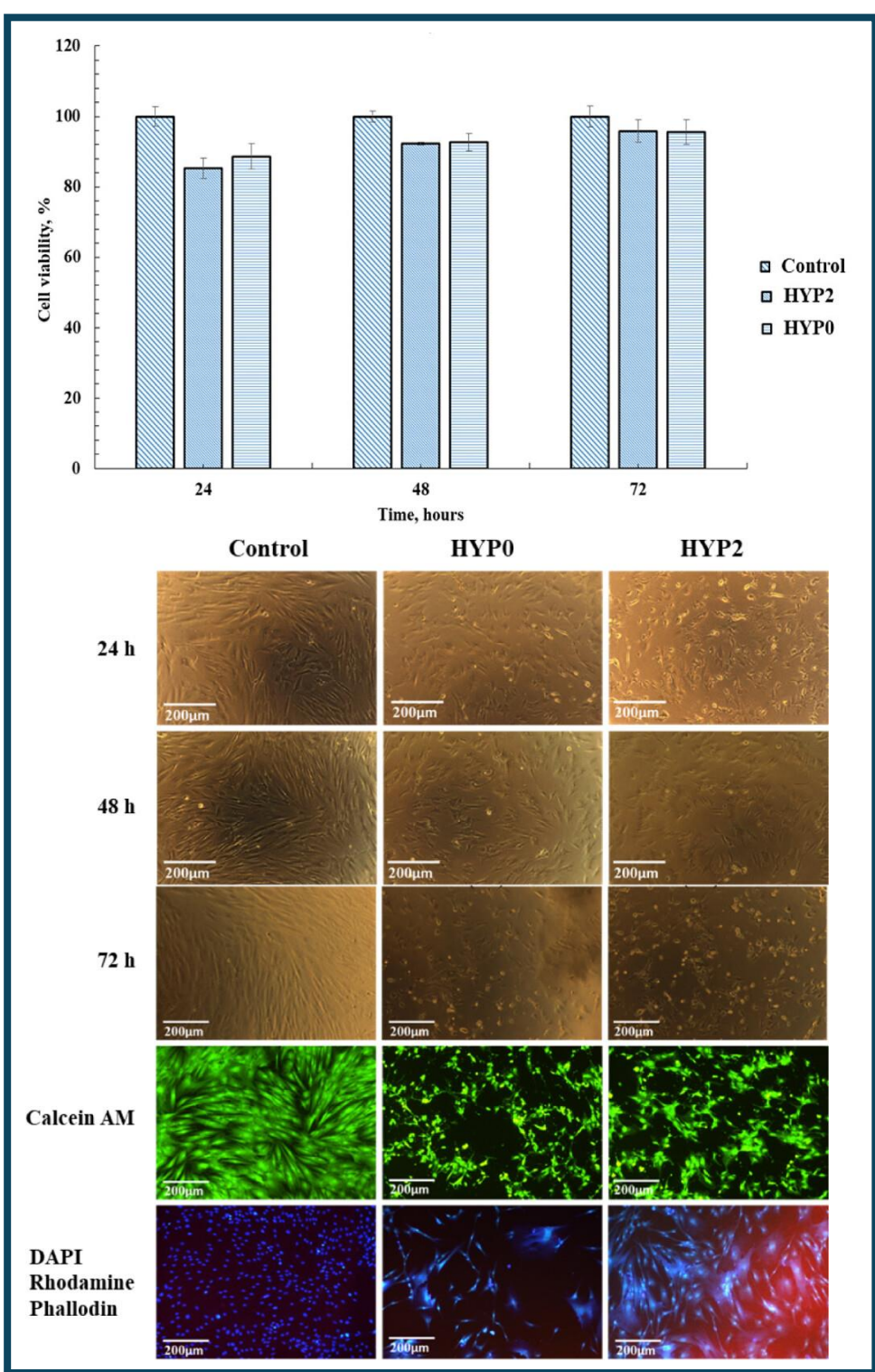
Antimicrobial properties



Conclusions

- Ultralightweight and porous constructs comprising thiourea-functionalized CS and a polyphenol-rich *Hypericum perforatum* L. (St. John's wort) extract were successfully developed by a versatile one-pot ice-templating strategy.
- The fabricated materials exhibited ultrafast and pH-dependent liquid absorption behavior, as well as mechanical robustness with complete shape recovery in the wet state after compression.
- The presence of the herbal extract in the cryogel constructs afforded improved antioxidant activity and multistrain antimicrobial performance.
- The constructs were cytocompatible, promoting the NHDF cell viability without altering their morphology. However, further wound healing studies are desirable and currently forthcoming.

In Vitro Cytocompatibility



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