

Quantitative Differences in Carbomer Homopolymer Type B and Its Effect on the Structural and Permeation Characteristics of Diclofenac Sodium Topical Gels

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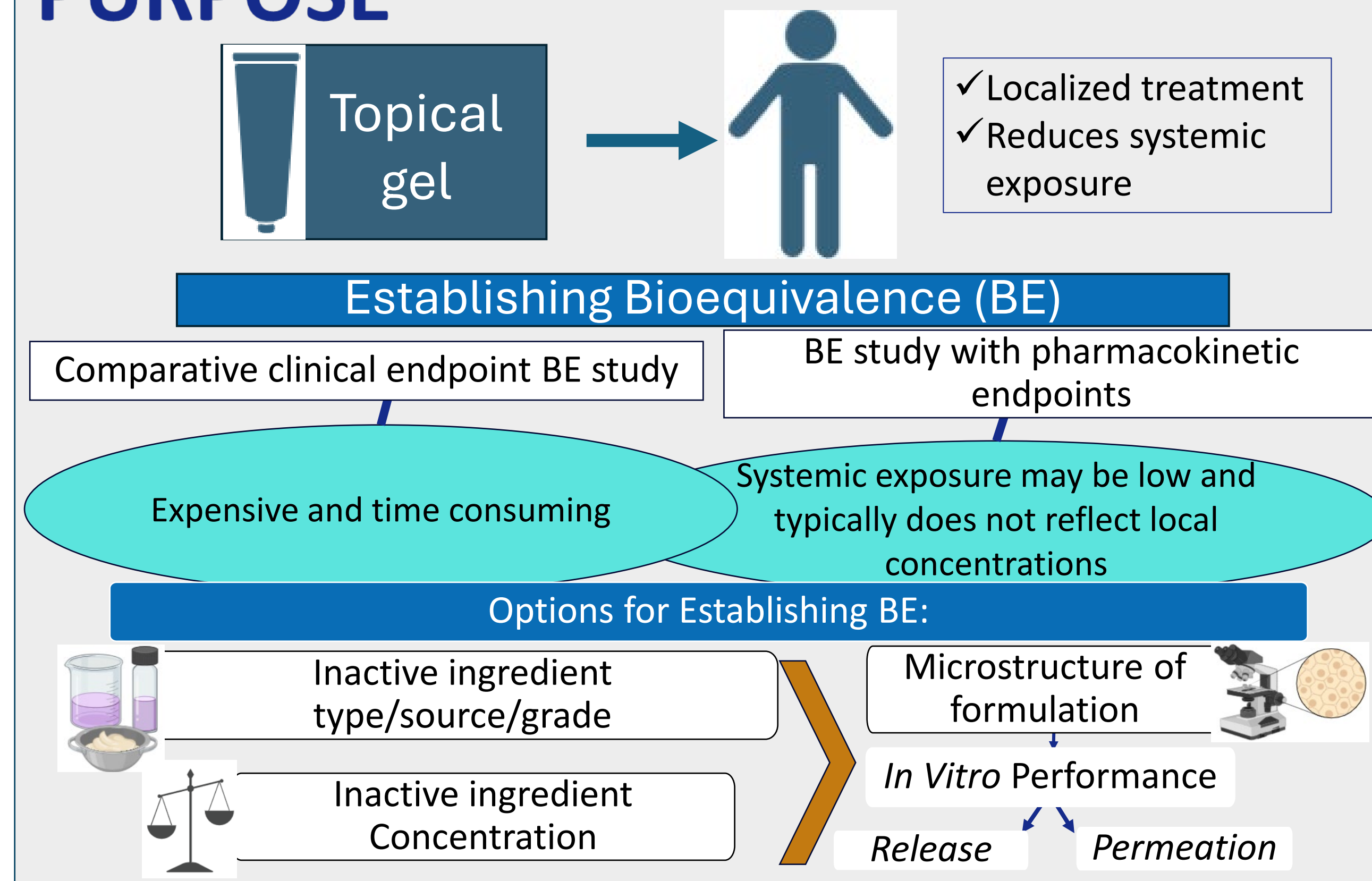
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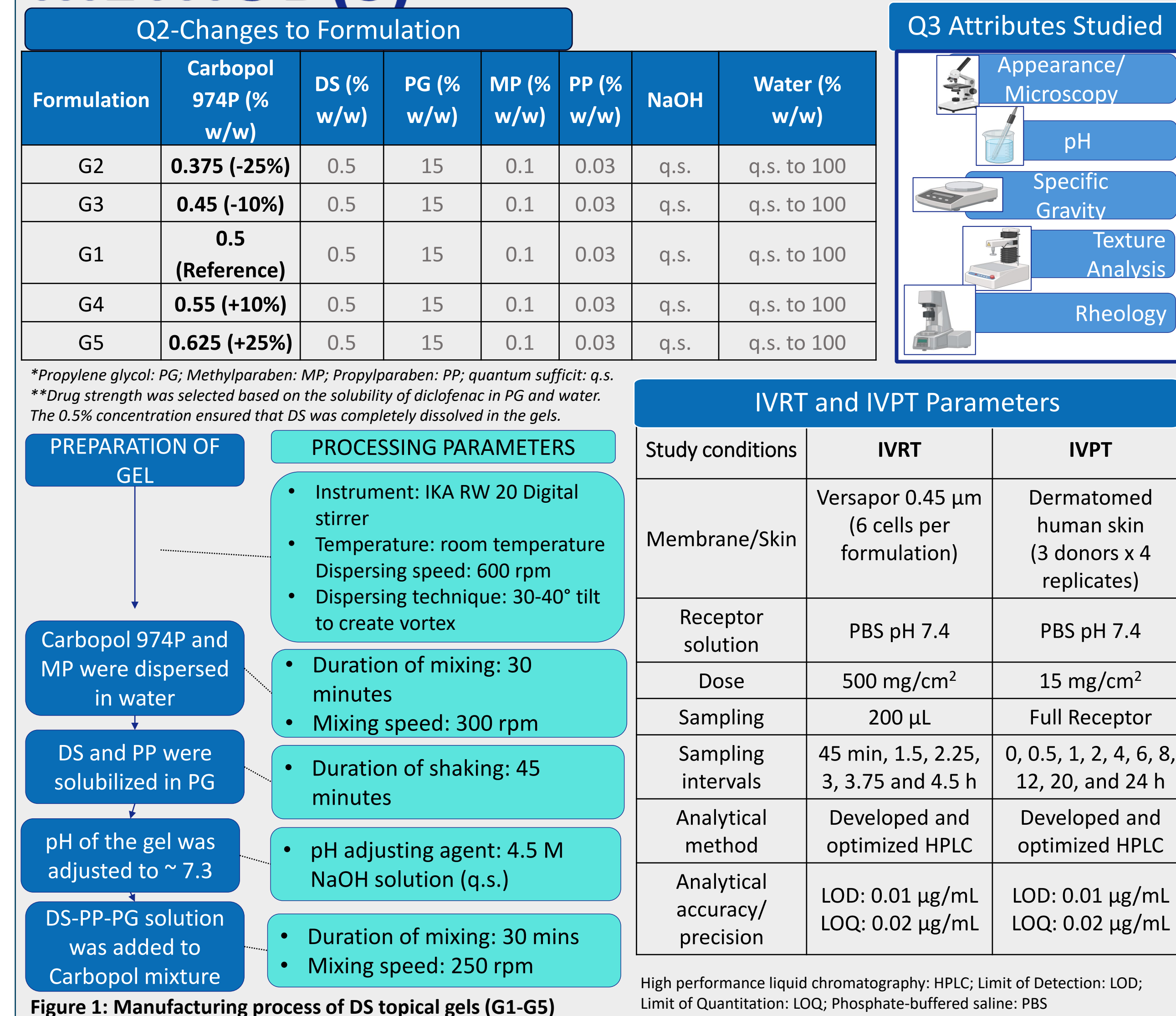
PURPOSE



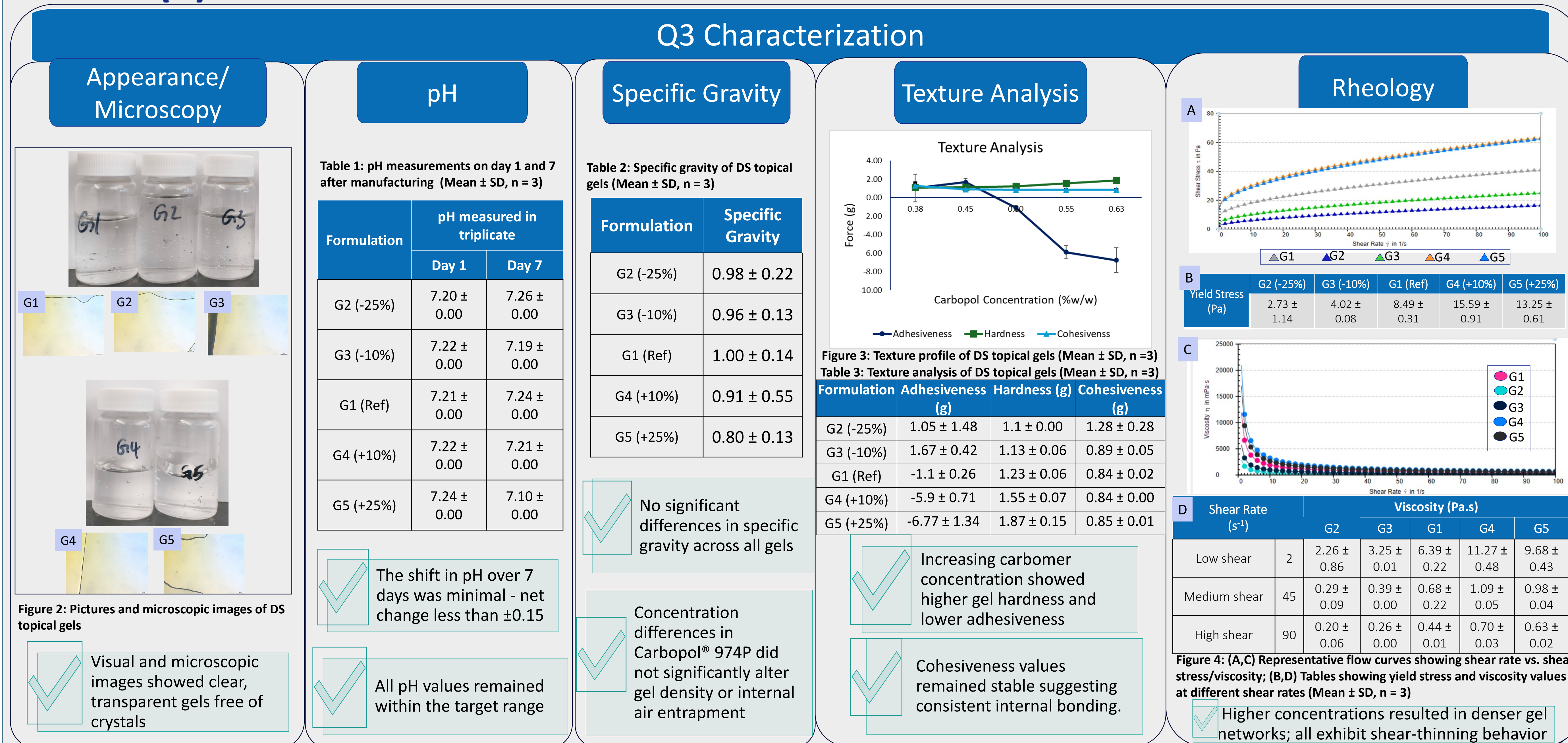
OBJECTIVE

To investigate the influence of quantitative (Q2) changes in carbomer homopolymer Type B (Carbopol® 974P) on the physicochemical and structural attributes (Q3), *in vitro* release test (IVRT) and *in vitro* permeation test (IVPT) of diclofenac sodium (DS) topical gels

METHOD(S)



RESULT(S)



CONCLUSION(S)

- All gels were physically stable (appearance, pH, specific gravity) and free of crystals for 7 days
- Manufacturing and processing conditions yielded reproducible, robust gels
- Q2 changes in Carbopol® 974P at or greater than ±10% relative to the reference (0.5% w/w) may impact Q3 attributes of DS topical gels such as rheology and texture
- Q2 increase in Carbopol® 974P concentration at +25% may associated with relatively higher release rate and permeation of diclofenac from the gels

FUTURE WORK

- Broaden the scope to include additional carbomer types and concentration ranges to establish generalized predictive relationships
- Investigate alternative gelling agents (i.e., poloxamer, hydroxyethylcellulose)
- Critically evaluate how microstructural attributes translate to drug release and permeation performance

ACKNOWLEDGEMENTS

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