Oleocolloid Matrices Designed for Food Systems

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INTRODUCTION

- Health agencies like WHO and FDA recommend replacing saturated and trans fats with vegetable oils.

Fig. 1: "Healthy for Good" by AHA.

- However, replacing those fats with oils has negative effects on texture.

Fig. 2: Examples of protein fortified products.

- Similarly, fortification of protein in food products is growing in popularity, but high food protein content drastically alters the final texture of food products.
- Oleogel (structured vegetable oils in the presence of gelators) may have a capacity to address textural challenges of incorporating vegetable oils and protein in food products.

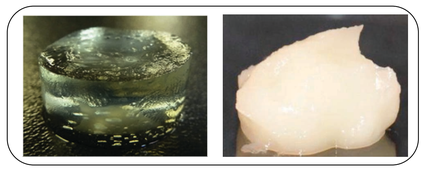
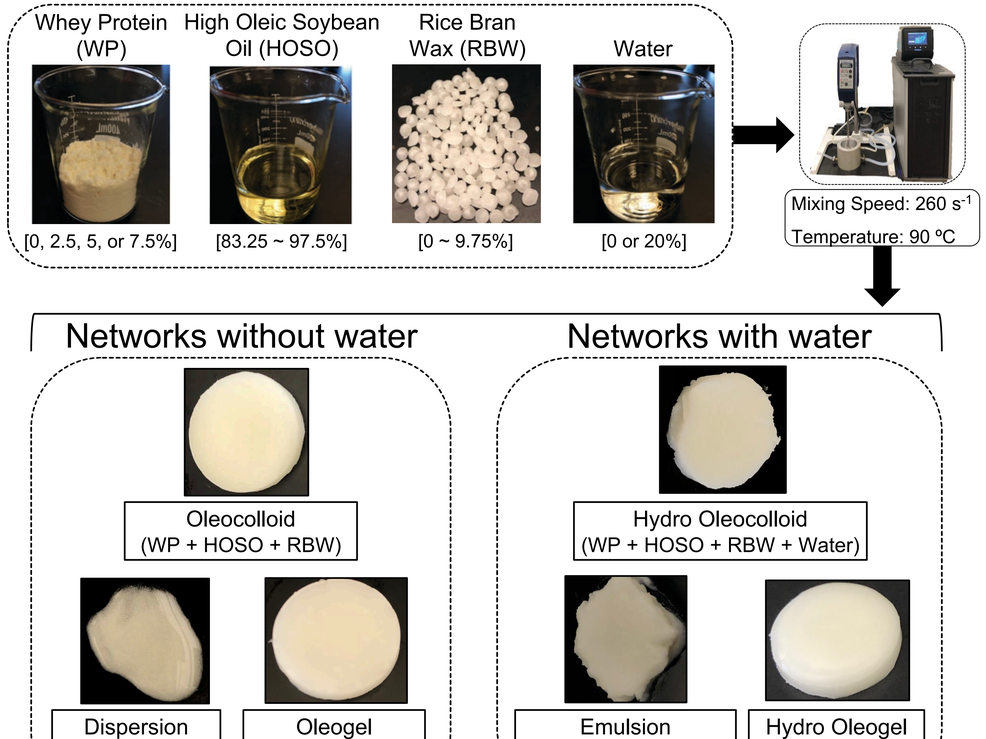


Fig. 3: Examples of oleogels[1, 2].

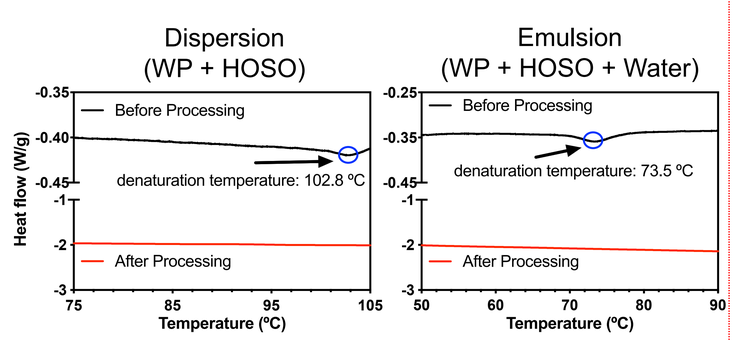
- The objectives were to develop systems of protein + oleogel (Oleocolloid) and investigate effects of their interactions on physical properties of Oleocolloid matrices.

COLLOIDAL NETWORKS PROCESSING

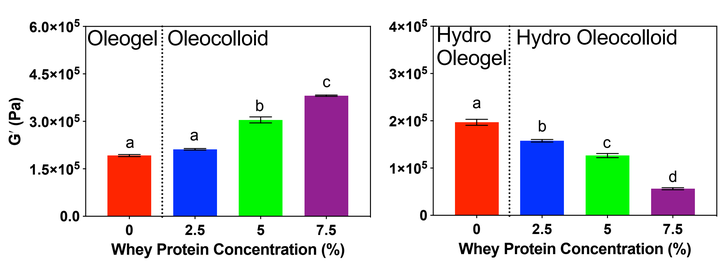


METHODS & RESULTS

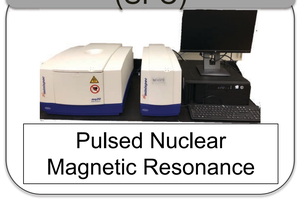
Thermodynamics



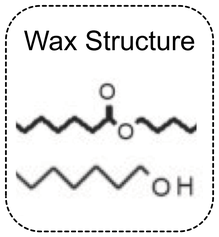
Texture



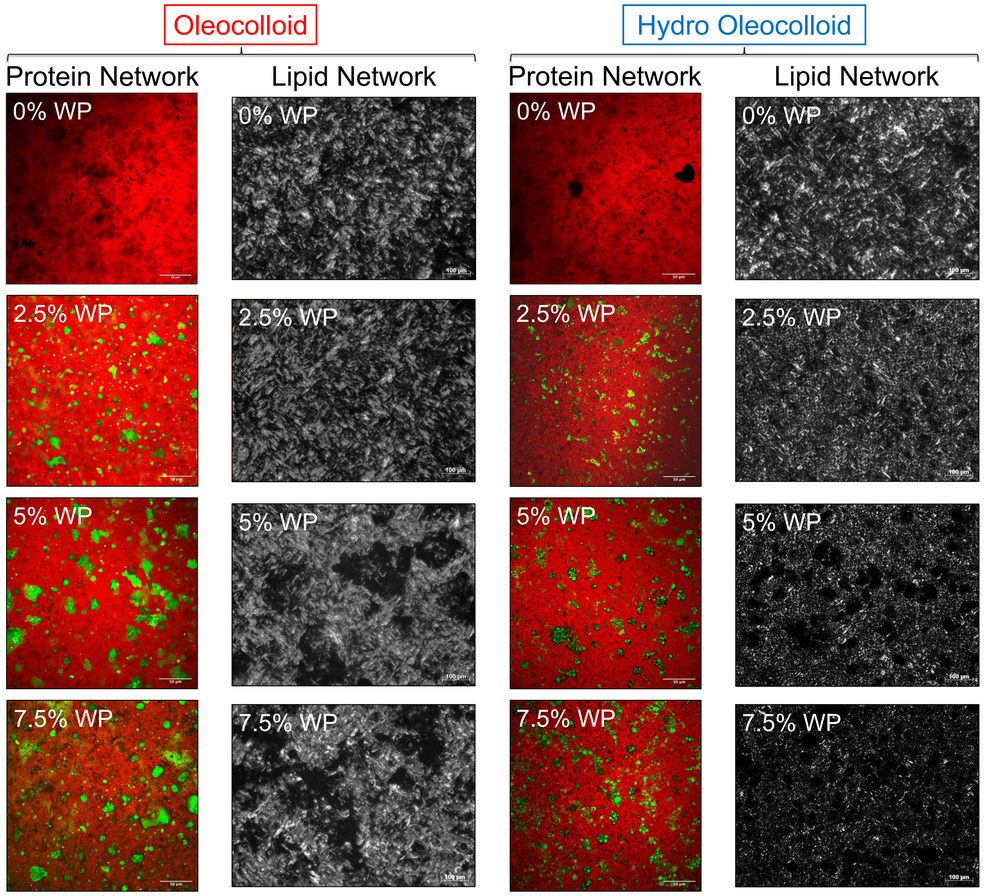
Solid Fat Content (SFC)



WP (%)	SFC (%)	
	Oleocolloid	Hydro Oleocolloid
0	8.75[a]	10.3[b]
2.5	8.56[a]	8.64[a]
5	9.08[a]	8.78[a]
7.5	8.45[a]	7.25[c]



Microstructure



CONCLUSION & DISCUSSION

- Oleocolloid and Hydro Oleocolloid matrices exhibited different structural and physical properties due to hydrophobic effects (oil vs. water).
- Physical stability (oil & water losses) of developed networks needs to be monitored.
- Future work could develop food products made with Oleocolloid matrices for enhanced nutrition (high protein & saturated and trans fat free).

REFERENCES

1. Singh, A., Azuanneau, F.I., & Rogers, M.A. (2017). Advances in edible oleogel technologies – a decade in review. *Food Research International*, **97**: 307-317.
2. de Vries, A., Wesseling, A., van der Linden, E., & Scholten, E. (2017). Protein oleogels from heat-set whey protein aggregates. *Journal of Colloid and Interface Science*, **486**: 75-83.