



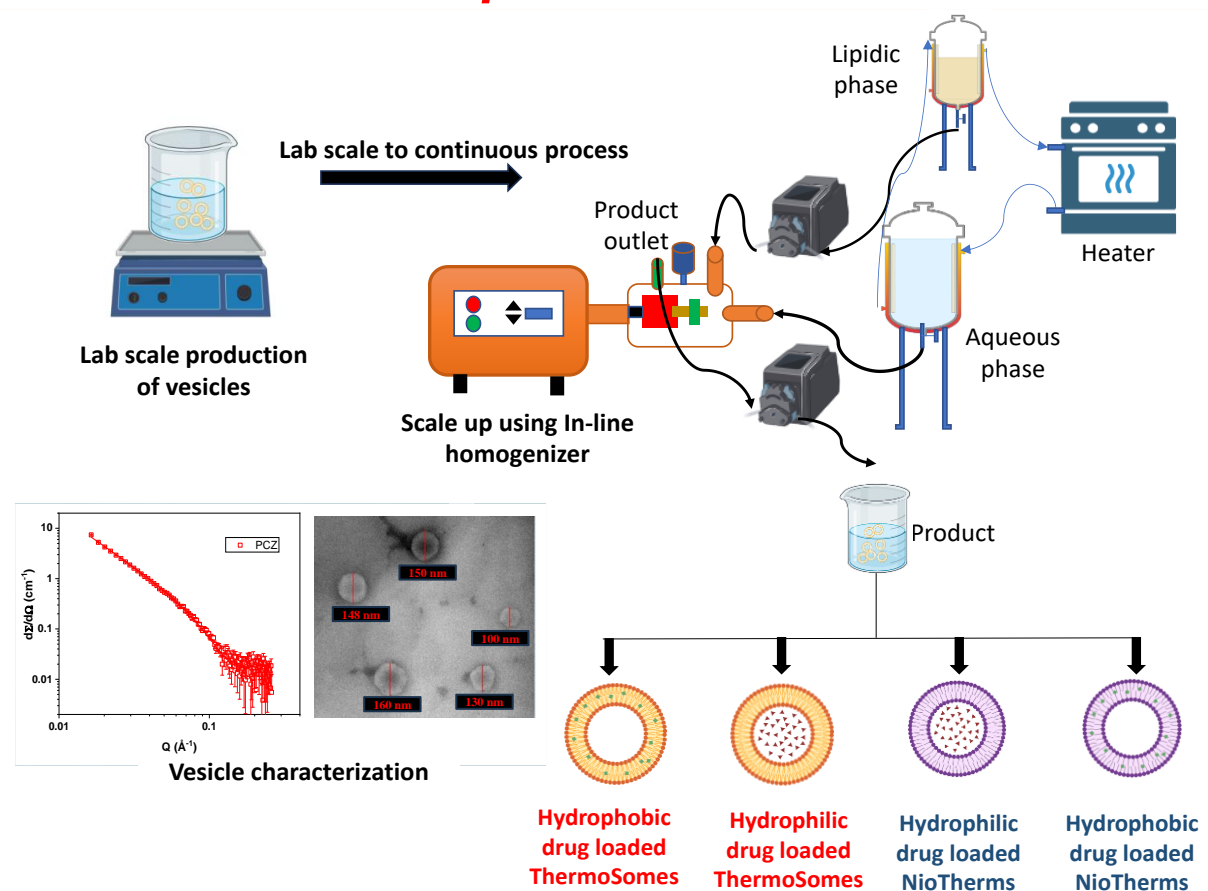
Revolutionizing Nanovesicle Production for Continuous Manufacturing with In-Line Homogenization

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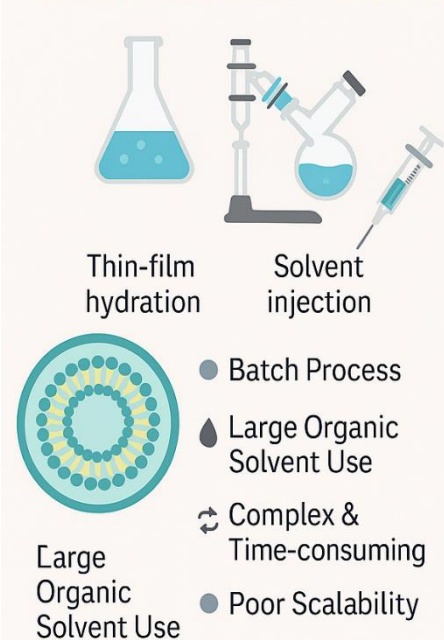
Poster
264

Graphical abstract

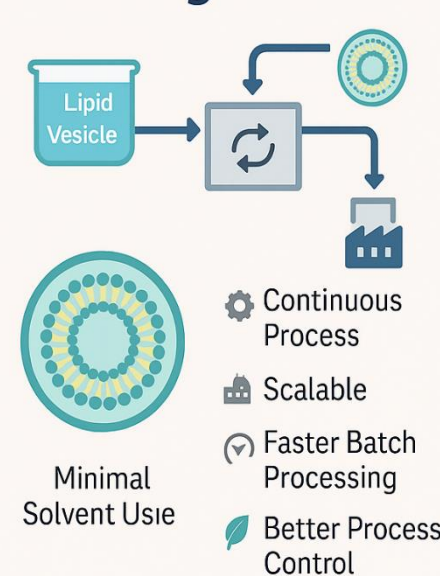


Why in-line homogenizer ?

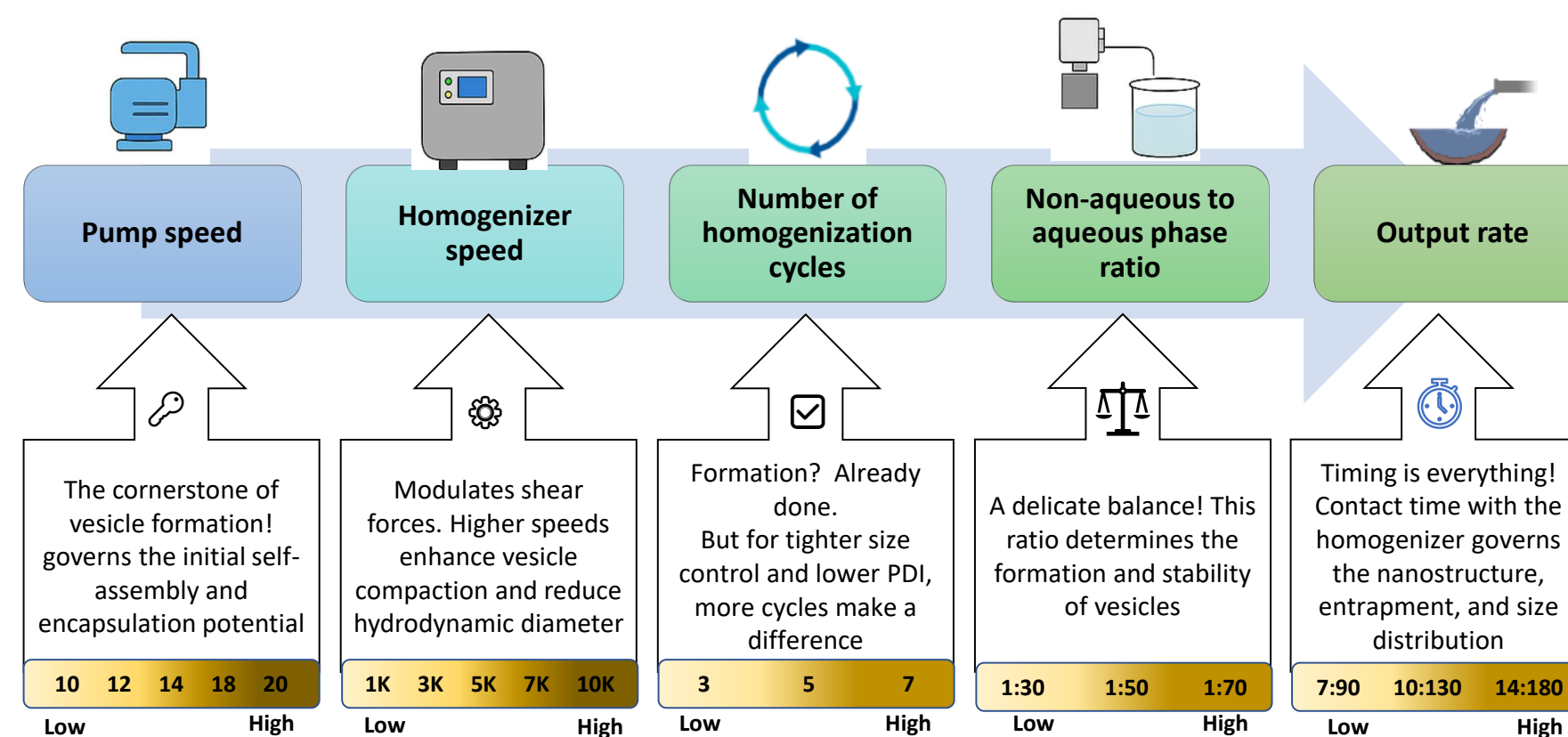
Traditional Methods



Inline Homogenization



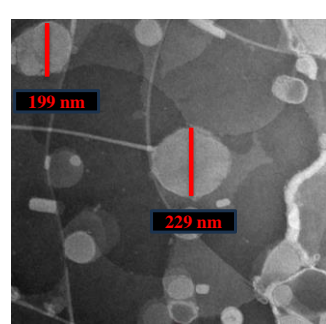
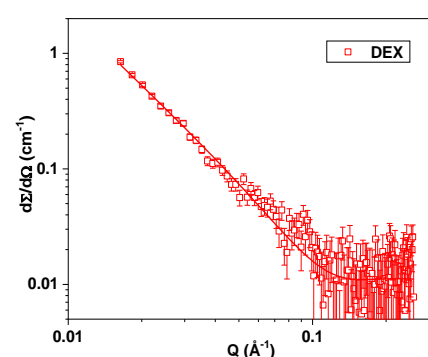
Process parameters optimization



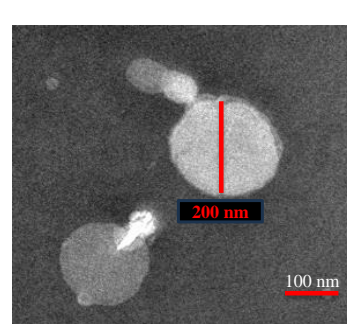
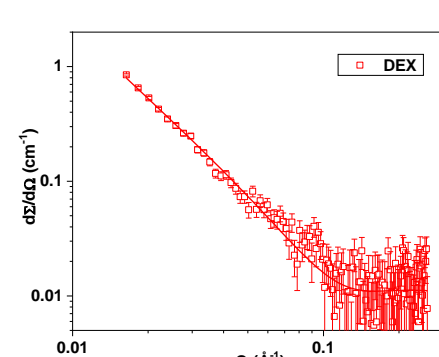
Vesicles' characterization

Thermosomes

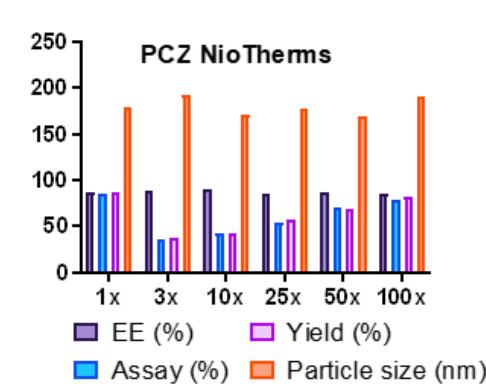
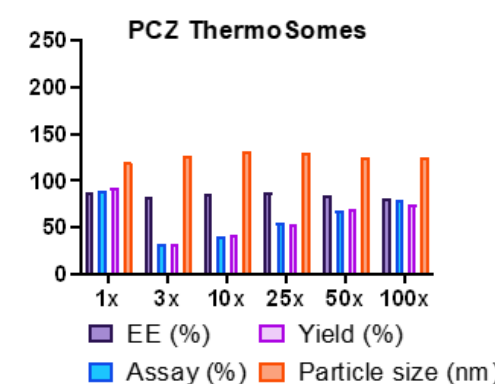
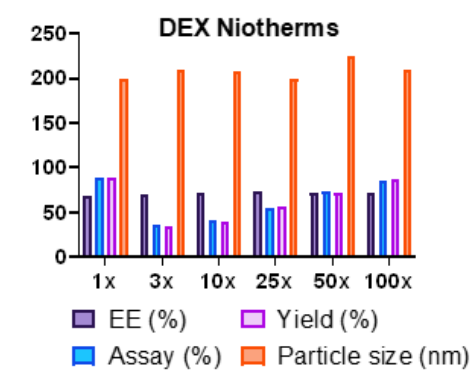
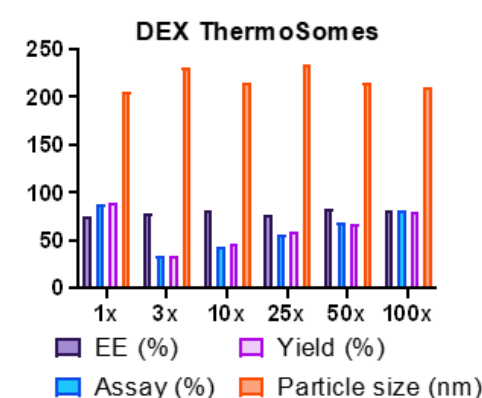
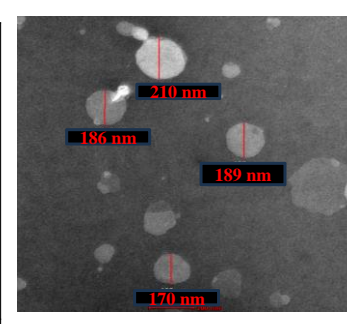
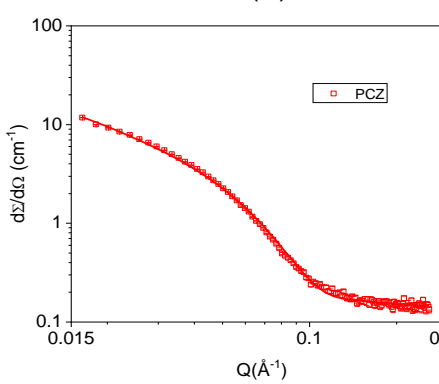
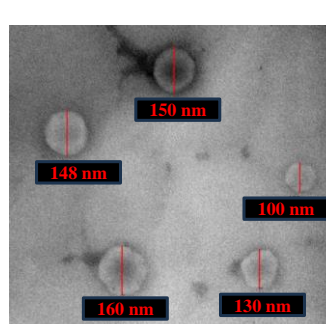
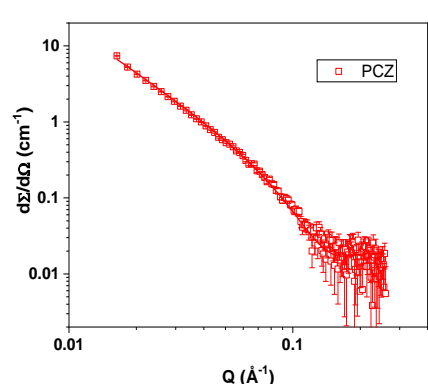
Hydrophilic drug



Niotherms



Hydrophobic drug



Conclusion

- ✓ In-line homogenization was explored for the first time to formulate bilayered vesicular systems, unlocking continuous, solvent-free processing.
- ✓ We could successfully encapsulate model hydrophilic and hydrophobic drugs in both Thermosomes and NioTherms.
- ✓ The process was seamlessly scaled from 1x to 100x using a customized assembly, maintaining uniformity and efficiency.
- ✓ Rapid batch turnaround achieved, with 1 liter formulation ready in just 5 minutes, setting a new benchmark for speed and scalability in nanovesicle production.