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Effect of structural parameters on rheological behaviour of apple cells dispersions:

A comparison of real systems and model systems.

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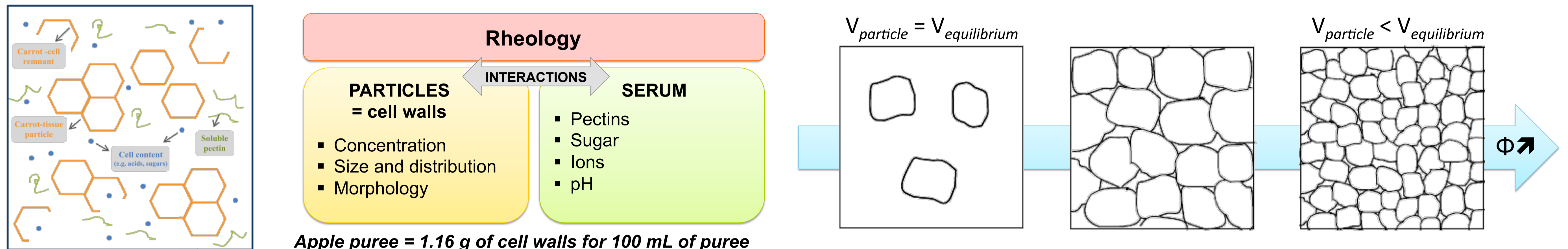
The research leading to these results has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement n° 311754

Research question: How does continuous medium impact rheological behaviour of fruit suspensions ?

Strategy & Context

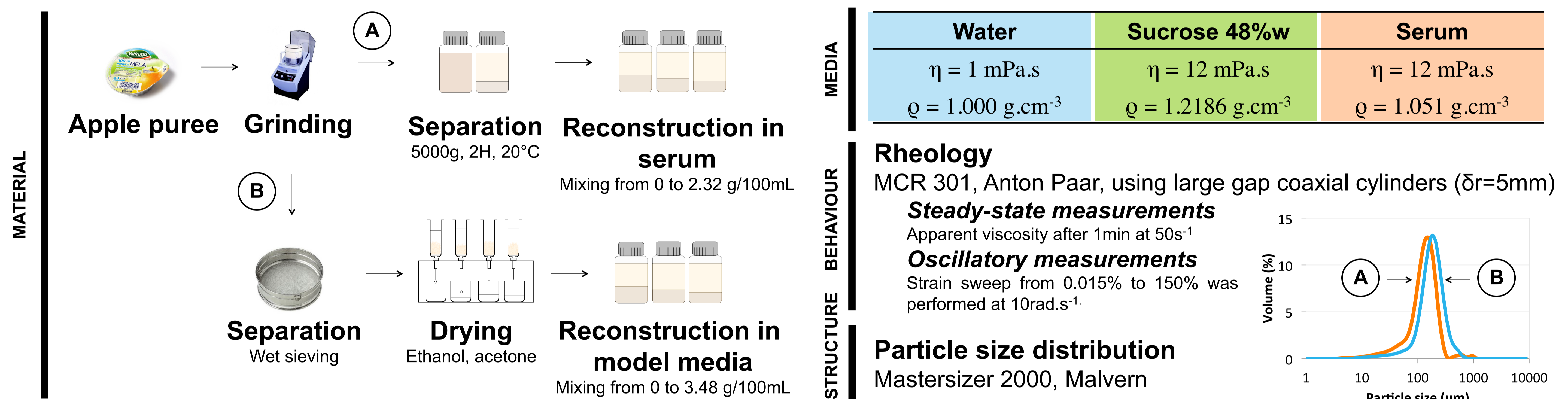
Context In food industry, controlling texture allows to generate innovative products and to deal with consumer expectations.

Fruit puree = vegetable deformable cells suspension

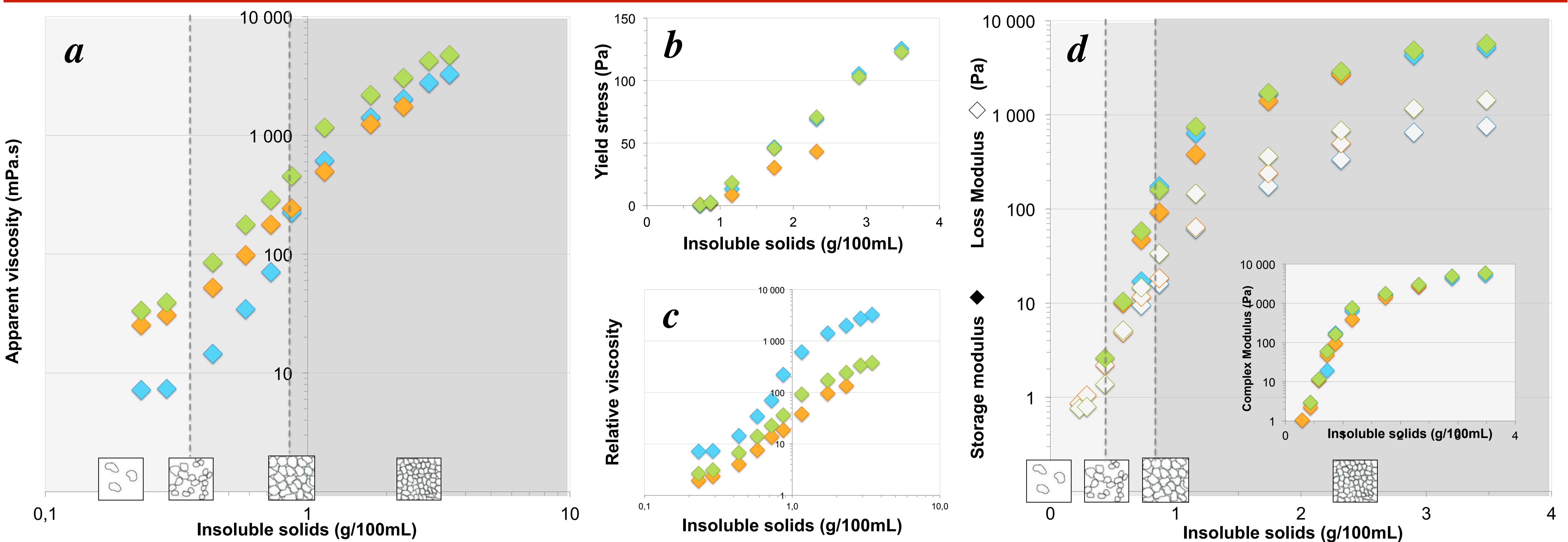


Construction of apple purees varying in : ✓ particle concentration (from 0 to 3.48g/100mL) ✓ continuous phase

Material & Methods



Results



Conclusion & Perspectives

- Same behaviour for reconstructed apple puree and model apple purees: Three concentration domains are visible, in both flow and dynamic measurements (Figures a, d)
 - ✓ Diluted domain: Newtonian flow.
 - ✓ Semi-diluted domain: Existence of a weak network between particles.
 - ✓ Concentrated domain: Particles begin to pack and their volume becomes lower than their equilibrium volume.
- The network of particles is built up the same way whatever the continuous phase (d)
- In the diluted domain, apple cells seem to expand more in water than in other media (c)
- The limit of flow (yield stress) depends linearly on the insoluble solid content (b) in semi-diluted and concentrated domains, in water and sucrose solution.

Next step is to determine the evolution of the volume occupied by the particles when the insoluble solid content increases, to access to Φ and to determine the impact of polymers in the continuous phase.

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