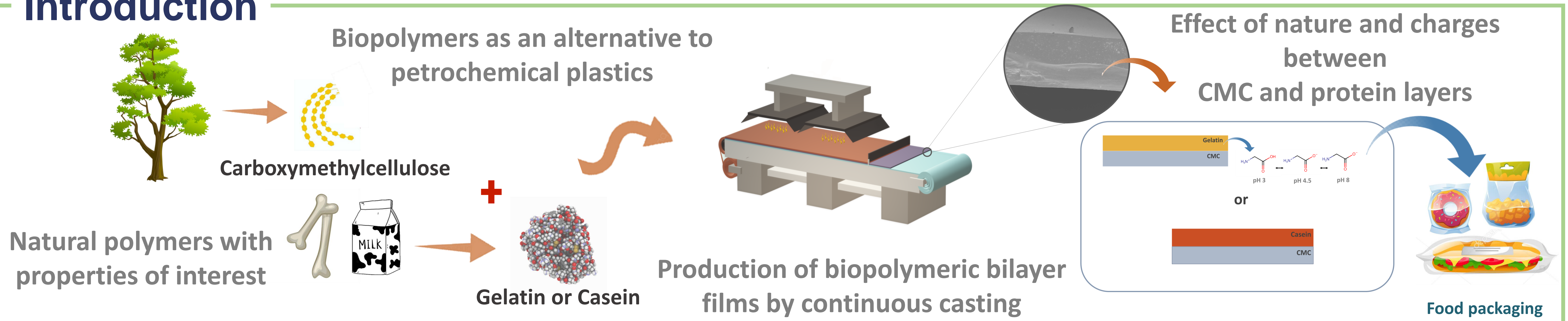


Laboratory-based research: the developed works are based on information and solutions that increase the competitiveness and the sustainability of national agriculture.

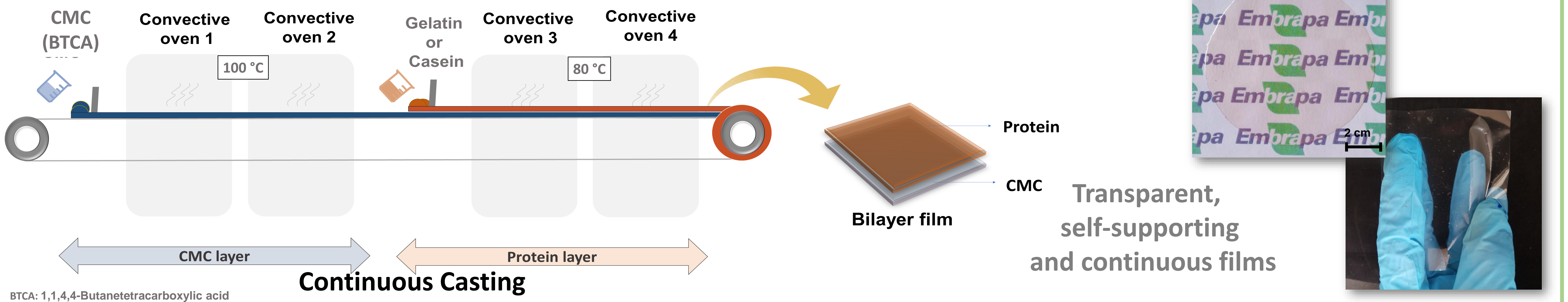
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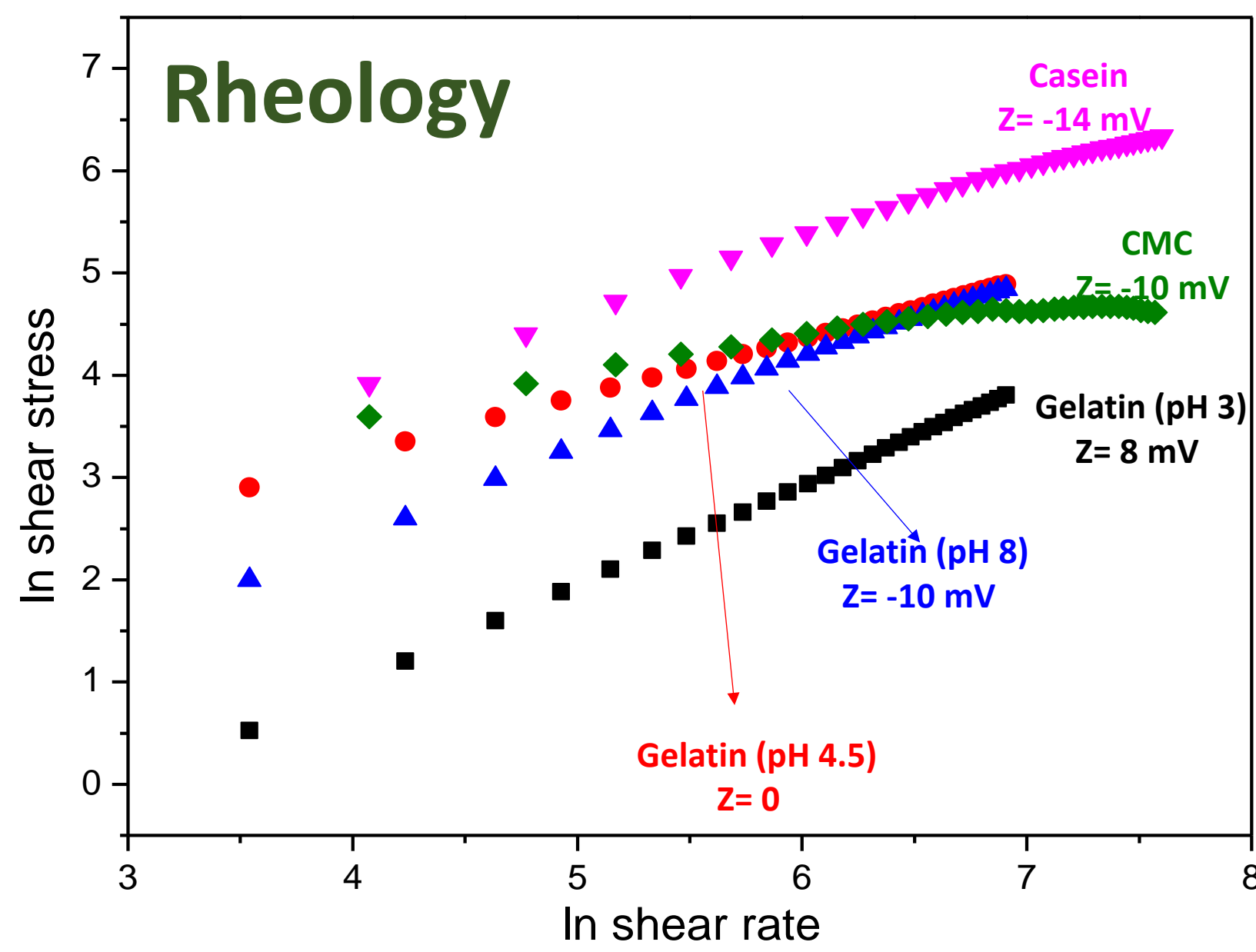
Introduction



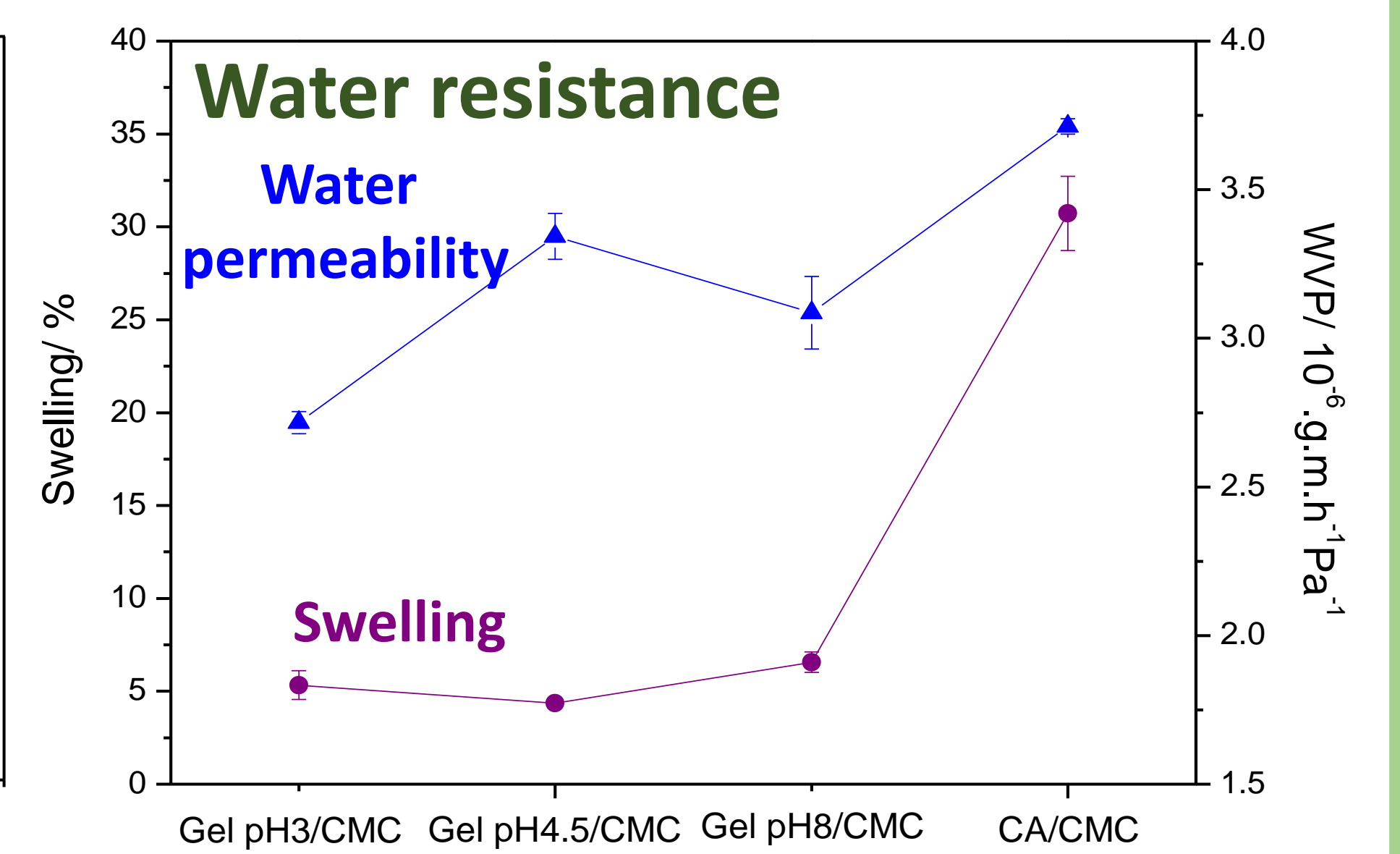
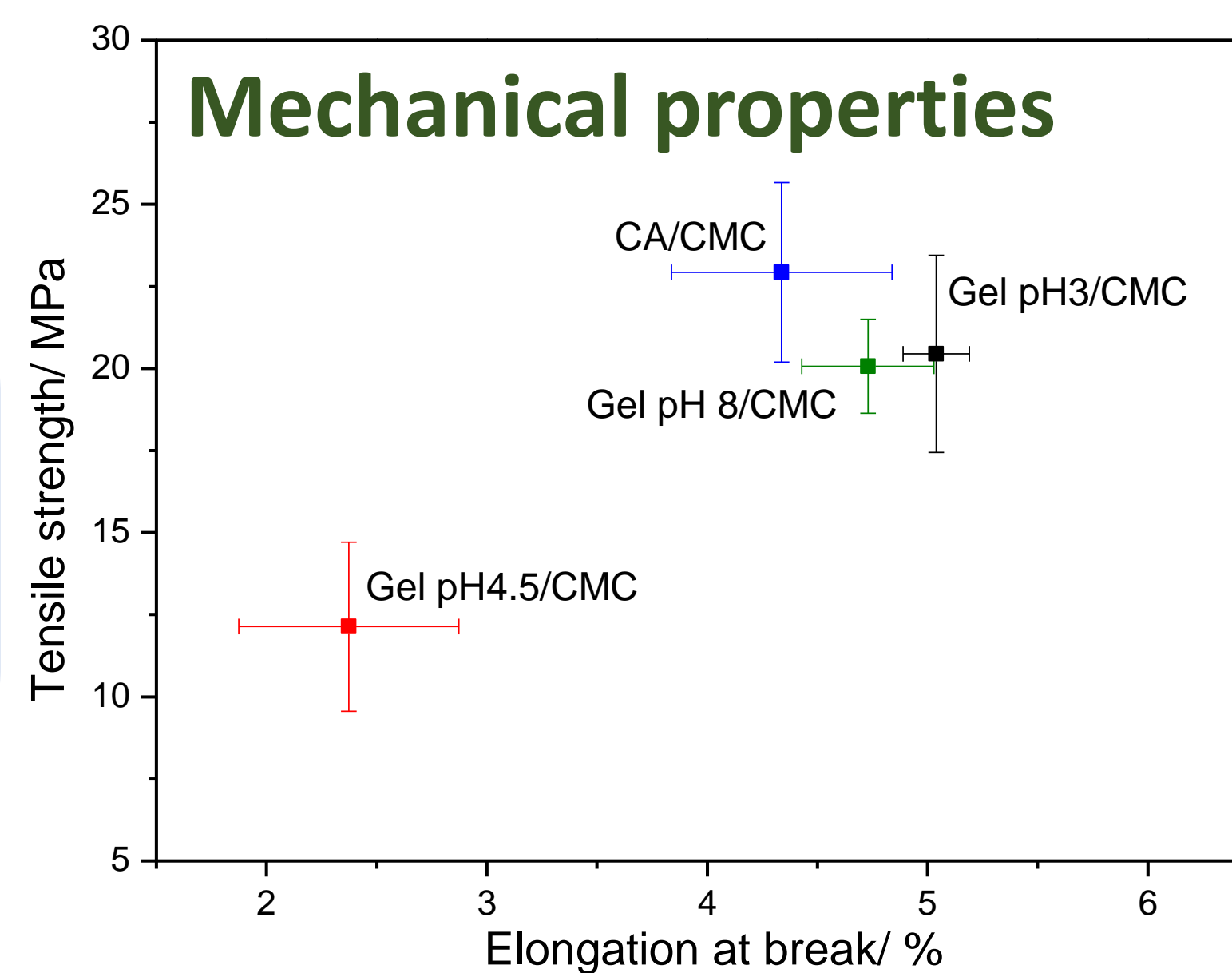
Methodology



Results



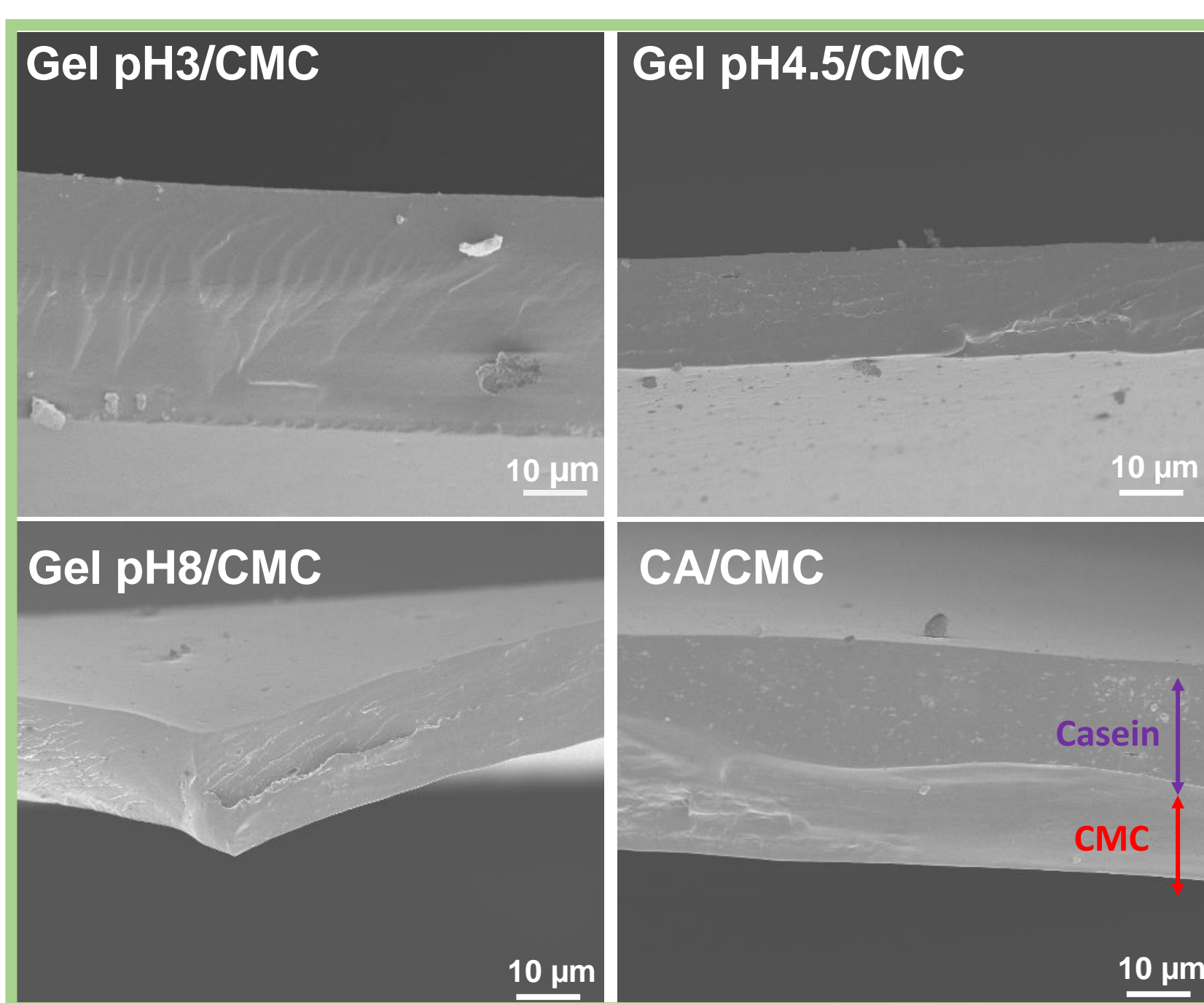
The nature and charges of proteins influence the intermolecular interactions and matrix cohesion



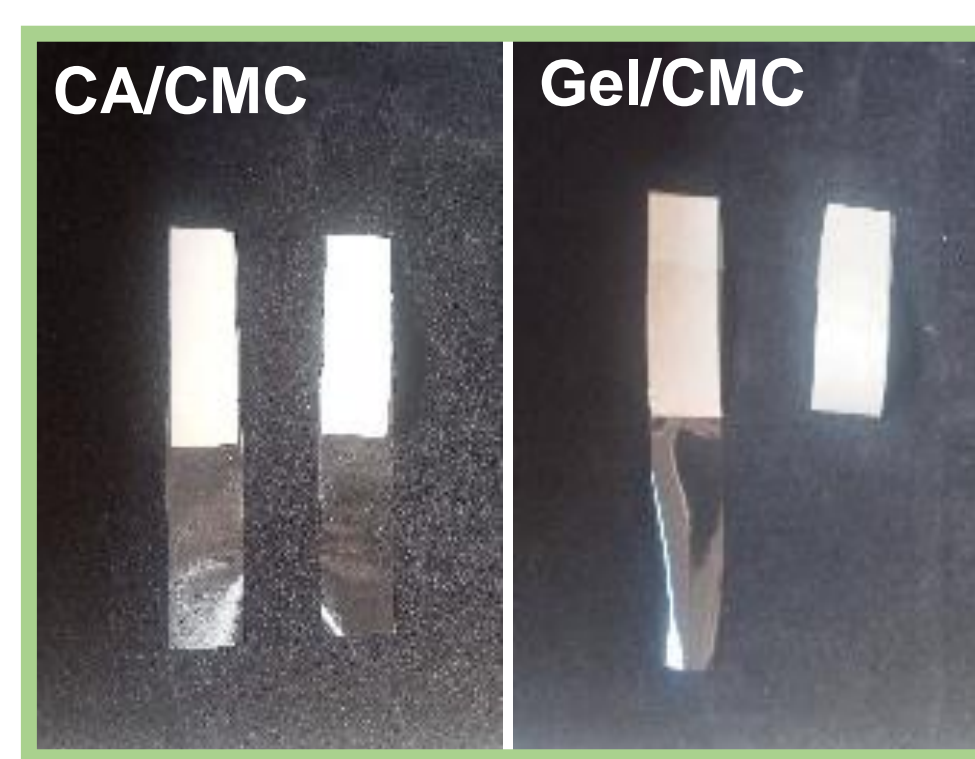
The interactions are governed by electrostatic forces, as the charges of the proteins modulate the affinity with the CMC

Mechanical performance and water resistance are affected by the nature and charges of proteins

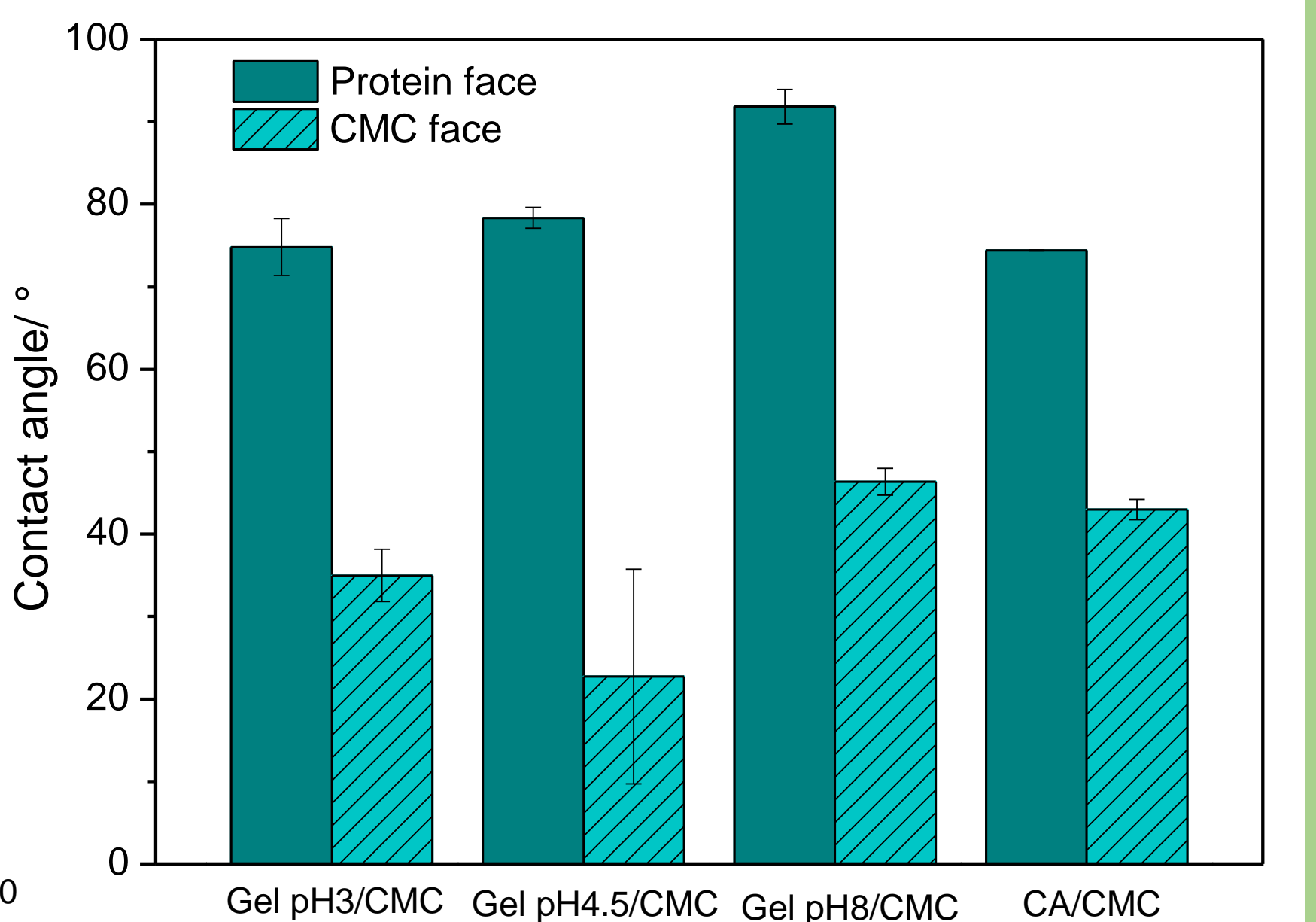
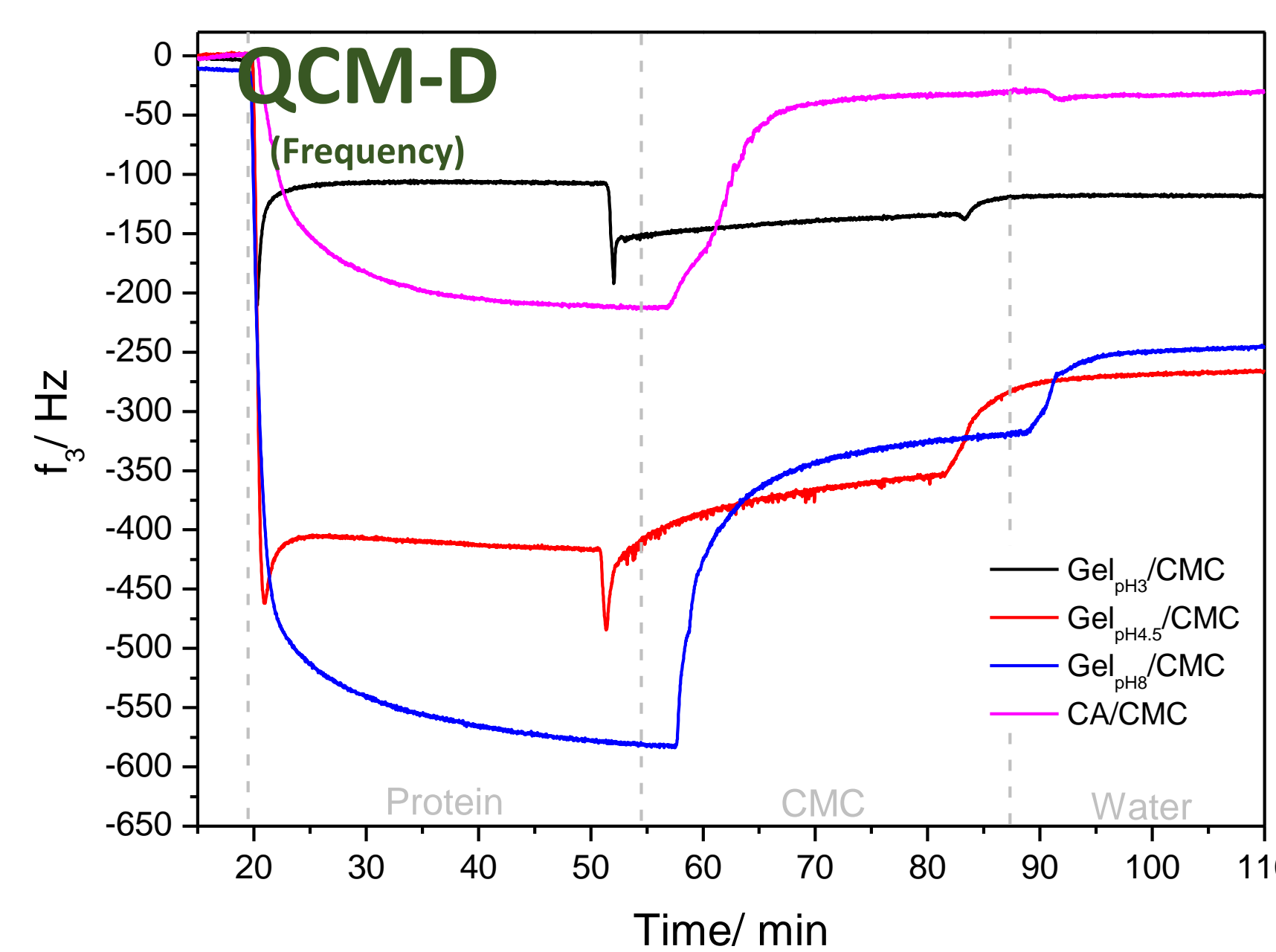
Cross-section SEM images



Qualitative delamination test



The gelatin layer had better adhesion to the CMC layer than casein



Conclusion

- Bilayer films are a strategy for combining proteins and polysaccharides;
- It was possible to produce bilayer films on a semi-pilot scale;
- The charge and nature of proteins affect the affinity with CMC;
- The adhesion is governed by electrostatic forces.

References

1. Leite, L.S.F., et al. ACS Sustainable, 2021.
2. Chang, C., et al., Int. J. Biol. Macromol., 2017.
3. Chen, X., Int. J. Biol. Macromol., 2019.