

Correlating physico-chemical properties of pea fibres to their *in vitro* faecal fermentation

Aim

Field pea (*Pisum Sativum L.*) is interesting as a food component due to its nutritional value and high fibre content. Processing of plant fibres can affect their structure. We aim to characterize the physico-chemical properties of pea fibres as a function of thermal processing and correlate them to their microbial fermentation products after batch *in vitro* fermentation with human faecal microbiota.

Conclusion

Pea hull fibre contains a variety of polysaccharides, e.g., cellulose, hemicelluloses and pectins. Thermal processing increases the viscosity and particle size of pea fibres. During *in vitro* faecal fermentation, heated pea fibres were fermented quicker, indicated by the rate of pH change (ΔpH). Furthermore, the concentration of all present monosaccharides is reduced during fermentation

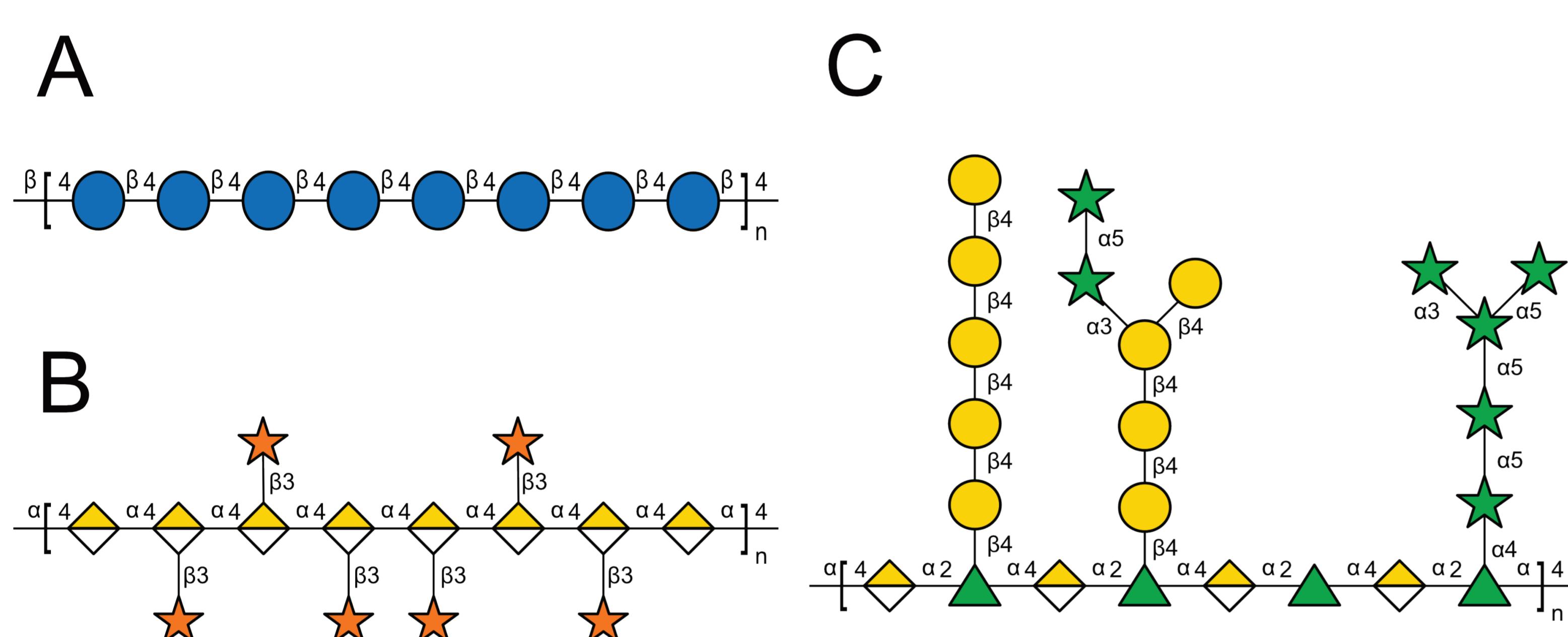


Figure 1: The monosaccharide analysis indicates the presence of at least three polysaccharides present in pea hull fibre. A. Cellulose, B. Xylogalacturonan and C. Rhamnogalacturonan I.

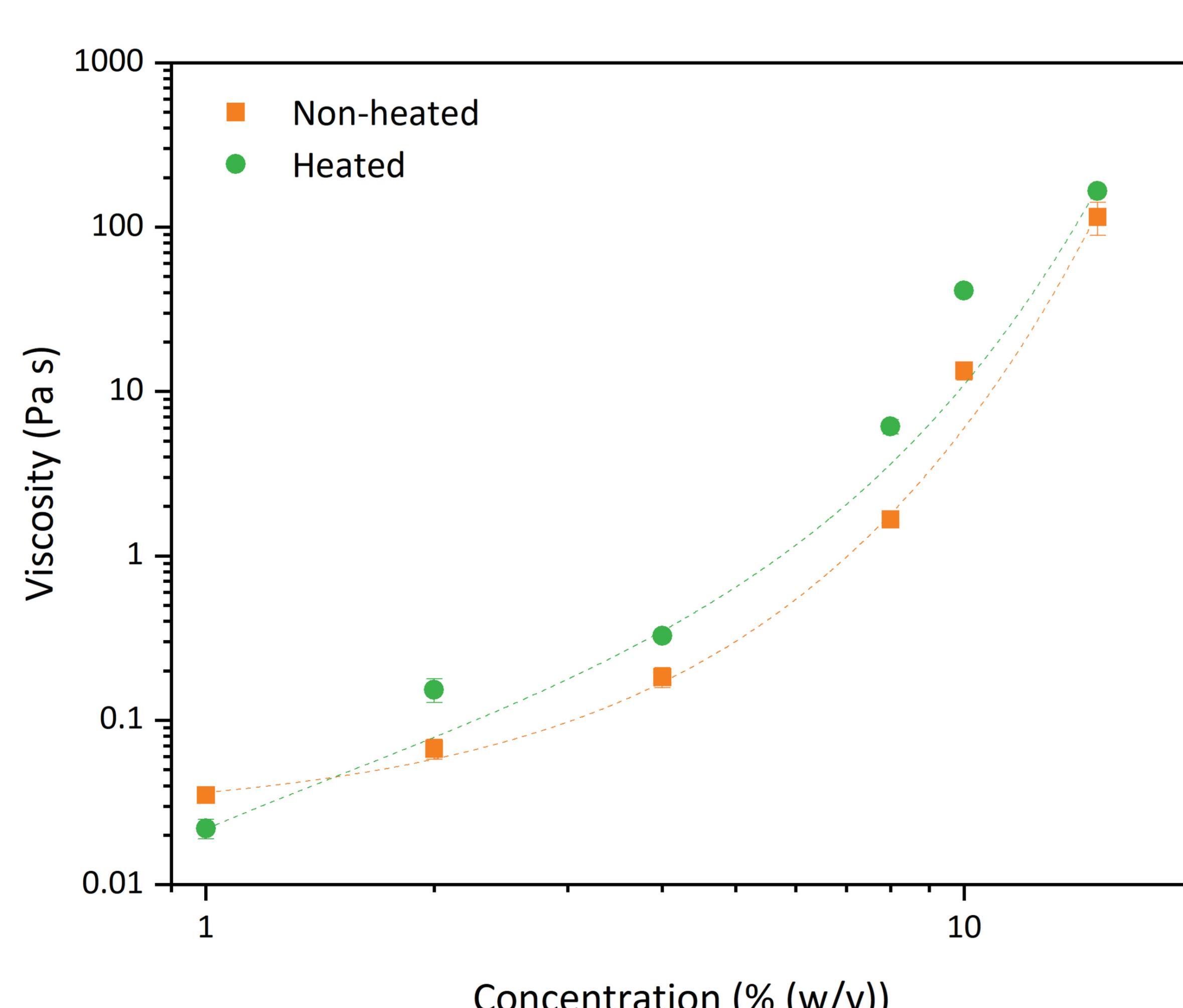


Figure 2: Viscosity of heated and non-heated pea fibres at concentrations ranging from 1 – 15% (w/v).

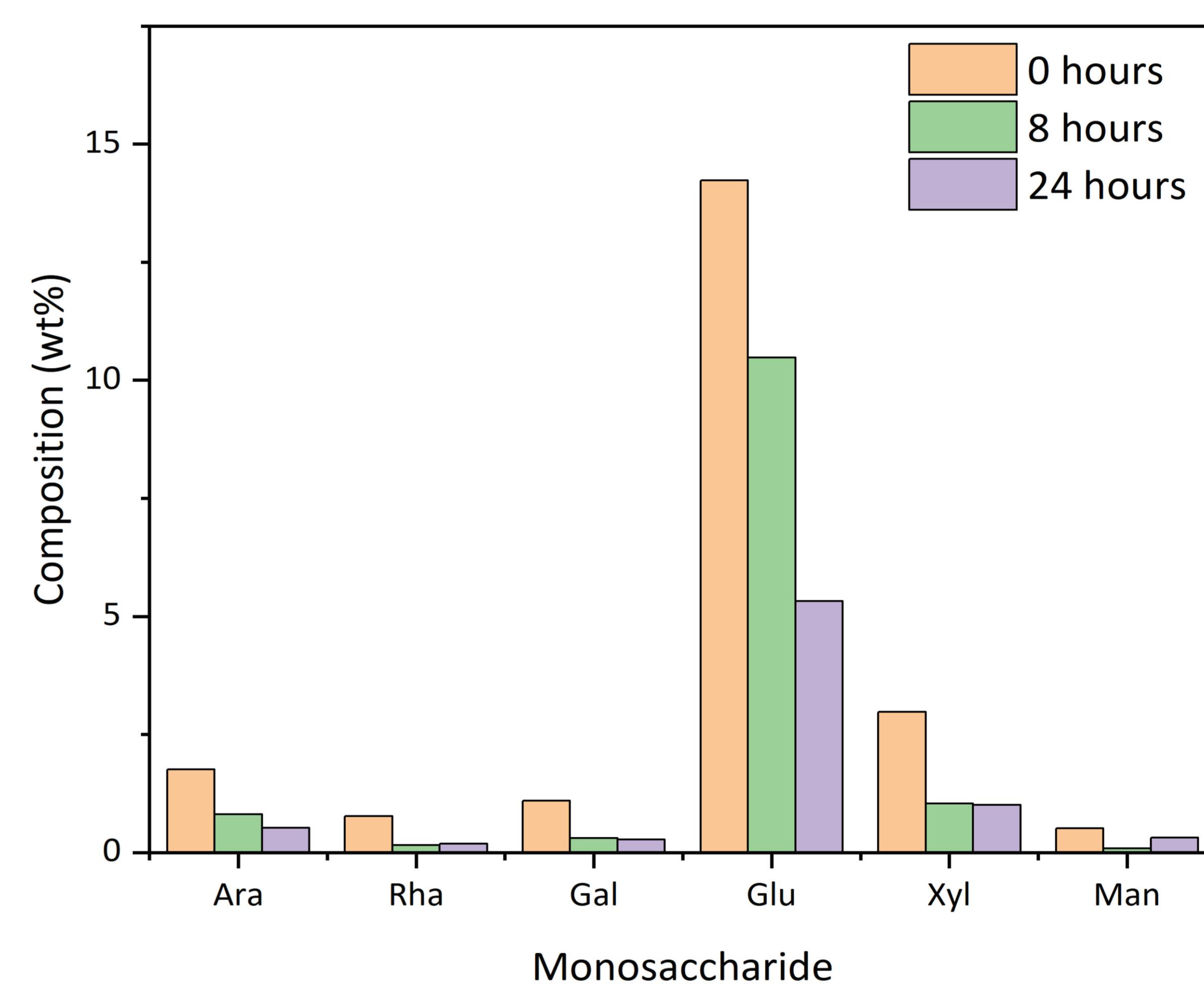


Figure 3: The total monosaccharides in pea fibres is reduced during *in vitro* faecal fermentation.

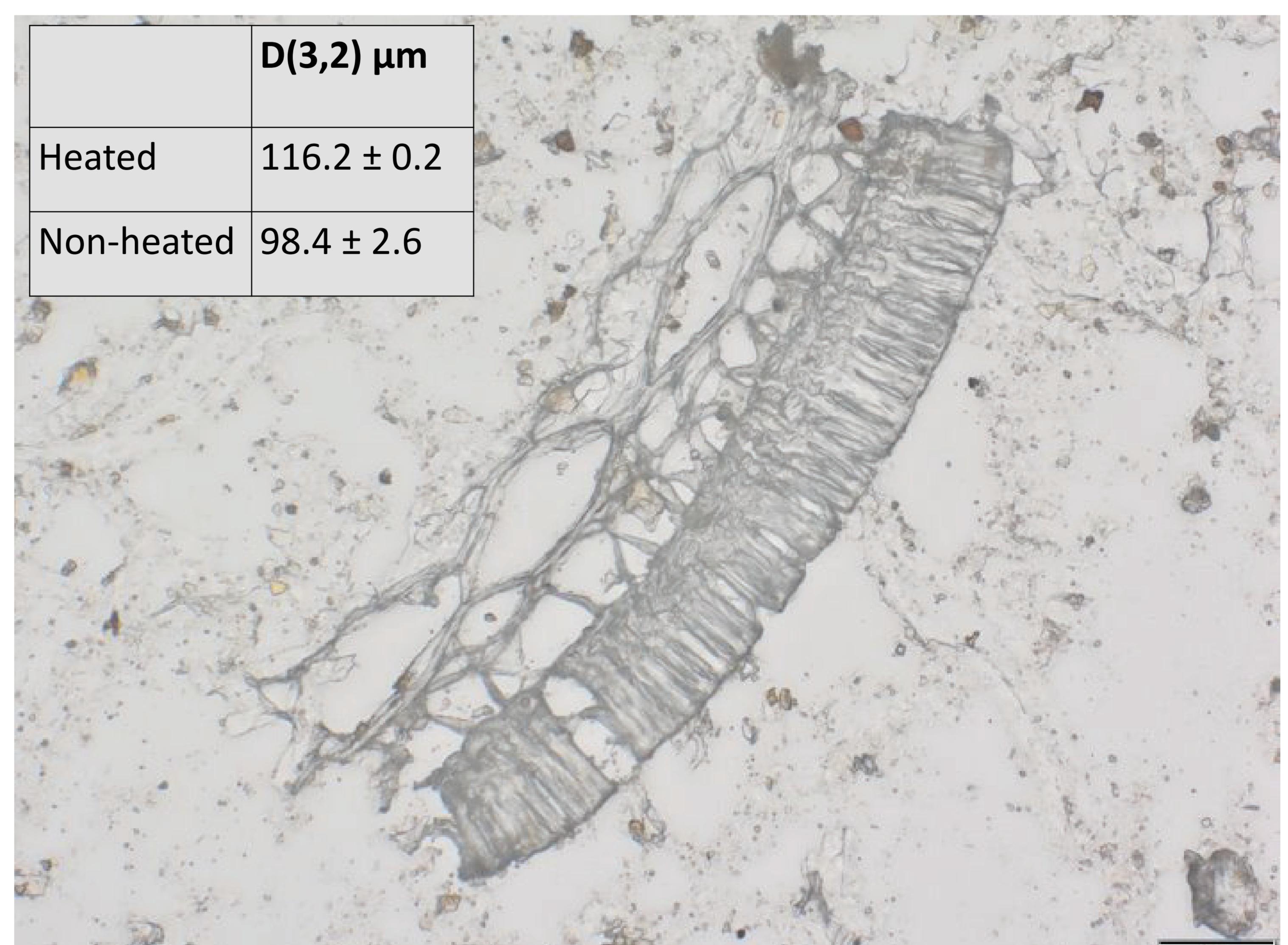


Figure 4: Light microscopy image of pea hull fibre before *in vitro* faecal fermentation. Scale bar 50 μm .