

Texture and microstructure of mixed gels from faba bean protein, starch and fibre

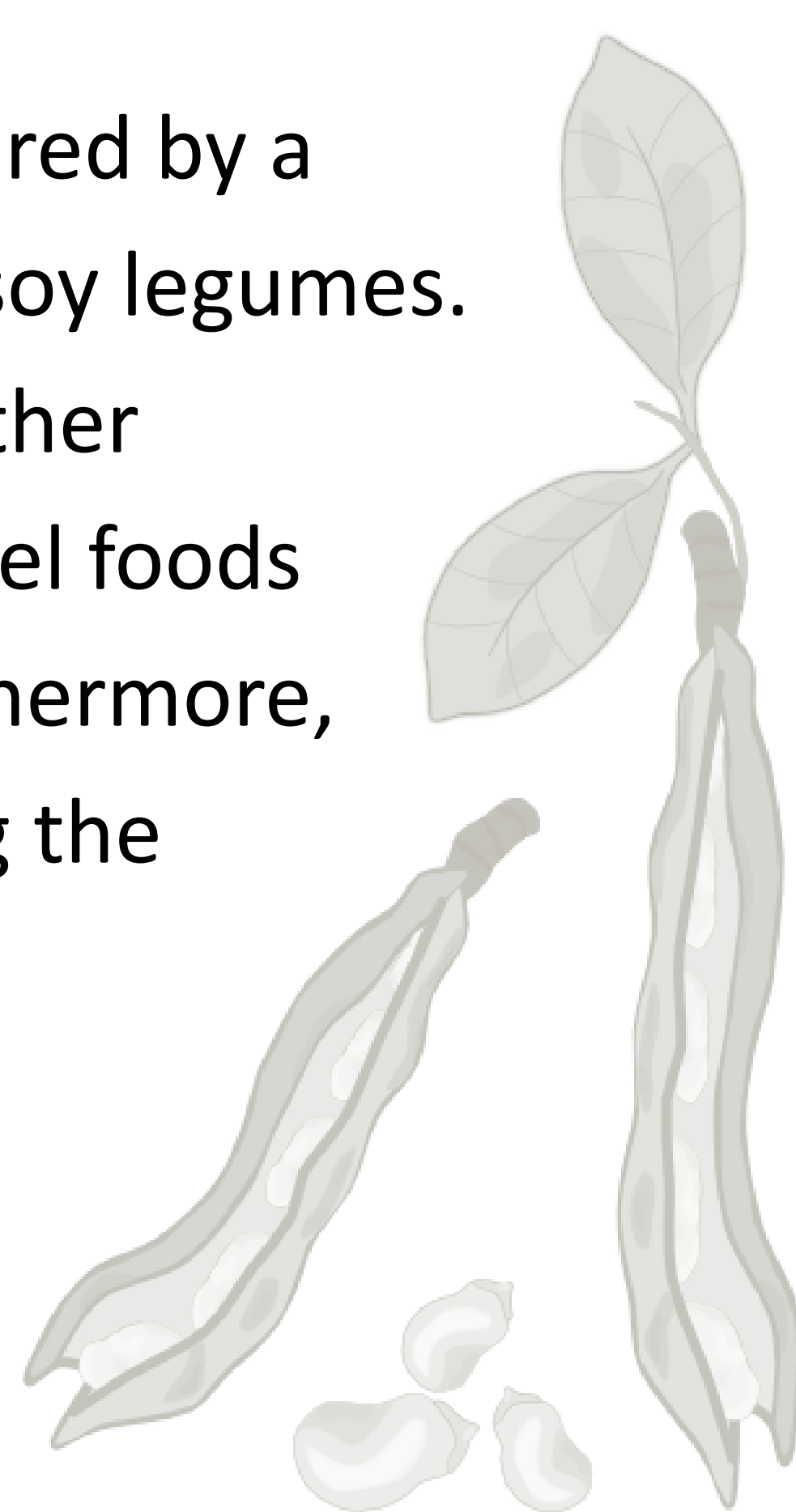
Aim

The aim of the project is to establish the relationship between the ratio of faba bean protein/starch/fibre and the texture and microstructure of mixed gels. The gel microstructures observed are related to physical and textural attributes of the gels. By understanding the role of protein, starch and fibre in mixed gel systems, products with tailored textures and functionality can be developed.

Conclusion

- Increased starch/fibre content reduced fracture stress and fracture strain but increased the young's modulus and storage modulus of protein-rich gels
- Starch gels were stronger and stiffer than protein gels
- Textural properties likely related to changes in water distribution and introduction of structural inhomogeneities upon addition of starch/fibre

Background: Use of non-soy legumes is hampered by a lack of understanding of gel formation of non-soy legumes. Increased knowledge of the gel formation of other proteins, can facilitate the development of novel foods based on locally produced Swedish crops. Furthermore, most foods have a complex matrix, highlighting the importance of also understanding the effect of other macromolecules. The faba bean is a promising raw material for the production of protein-rich plant-based foods.



This study aimed to investigate faba bean-based gels and determine the effect of protein/starch/fibre-ratio on gel texture and microstructure. Increased knowledge could facilitate the development of novel locally produced plant-based foods based on faba bean.

Methods: Gel formation was monitored by oscillatory rheology and gel texture was evaluated by compression test using a texture analyzer. Gel microstructure was analyzed using light (LM) and scanning electron microscopy (SEM).

