

Surplus peas to protein powder

Valorisation of wrinkled peas into protein powder and effects on minor components using different fractionation methods

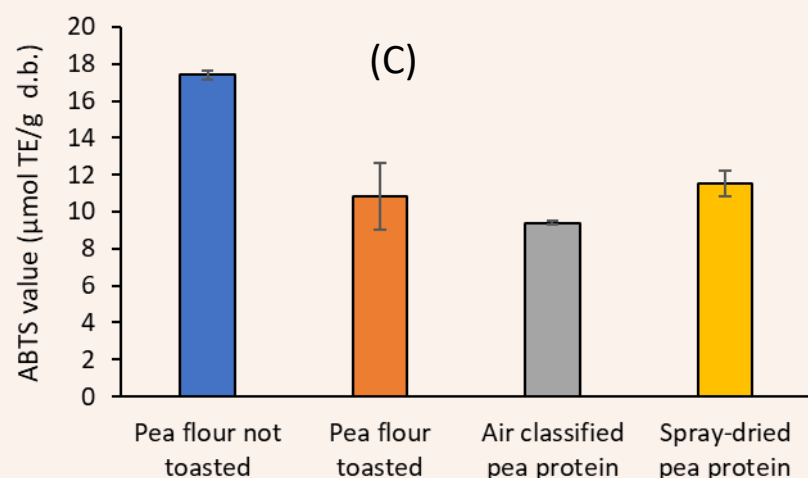
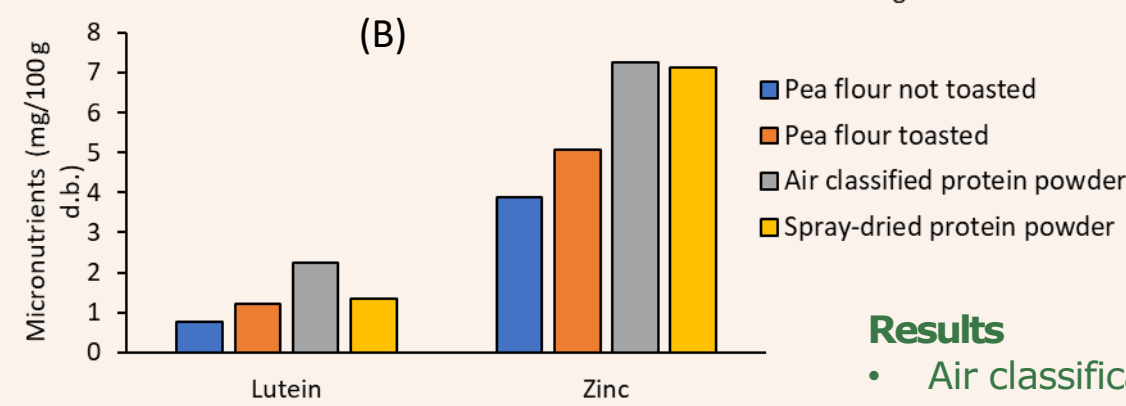
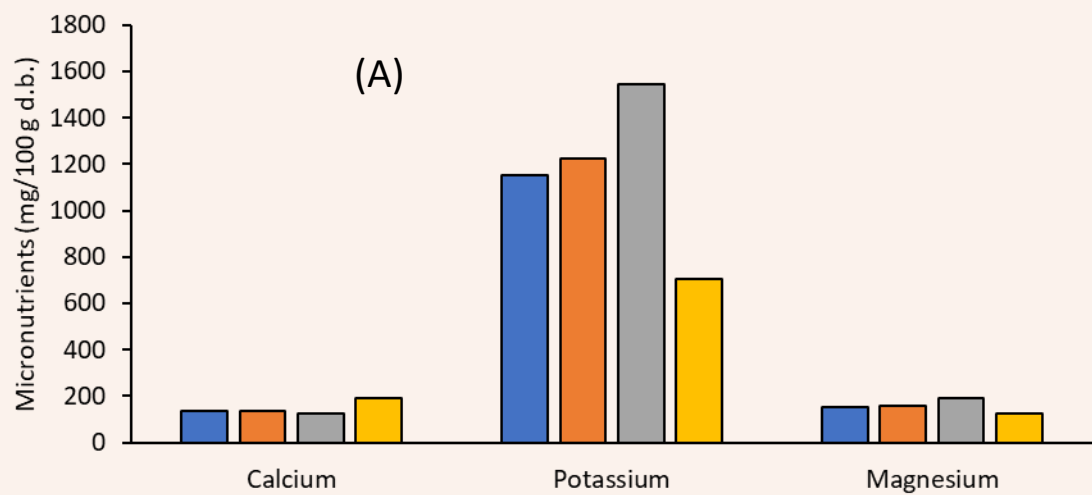
Introduction

Sweet peas are very popular in the frozen and canning industry. They are usually overplanted and the surplus is left on the field to mature and dry (generating wrinkled peas). Generally the surplus goes to feed, but it is also a potential raw material to produce protein-rich powders from:

1. As supplement in food products for elderly and recovery patients who struggle to have a sufficiently high protein intake.
2. To increase intake of healthy minor components.

Therefore, the protein recovery was studied by using two fractionation processes and the role of processing on the minor components was investigated.

Dry fractionation was selected because of the lower energy consumption and fewer processing steps compared to wet fractionation. Whereas, wet fractionation leads to higher protein purity.

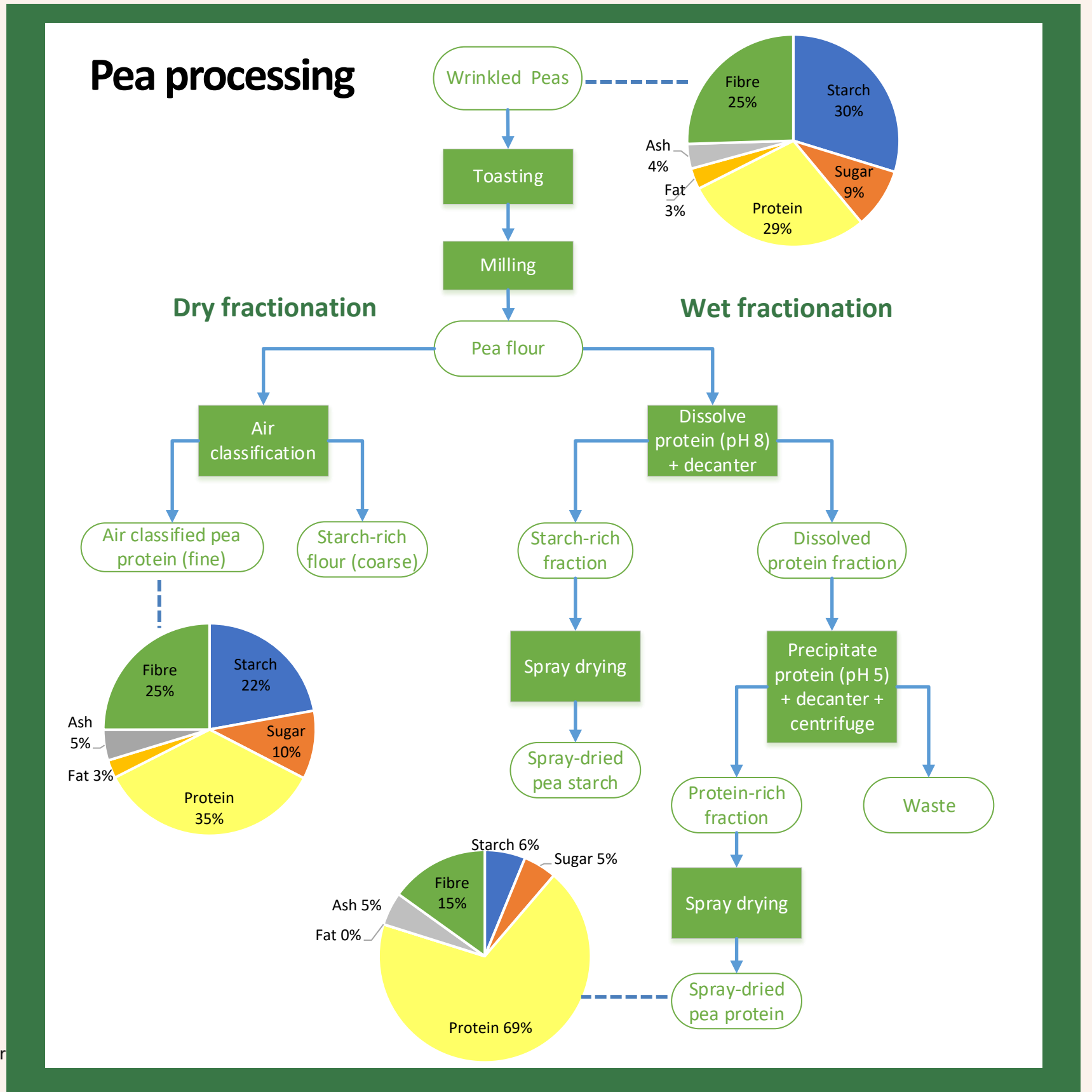


Results

- Air classification enriched the micronutrients in the protein-rich fraction except for calcium (A, B).
- After wet fractionation, only calcium and zinc are enriched in the protein fraction (A, B).
- The antioxidants reduced a lot after toasting (C).
- On average 41% of the recommended daily intake (RDI) of the studied micronutrients was met per 100 g air classified protein powder and 32% of the RDI was reached per 100 g of spray-dried pea powder.

Conclusions

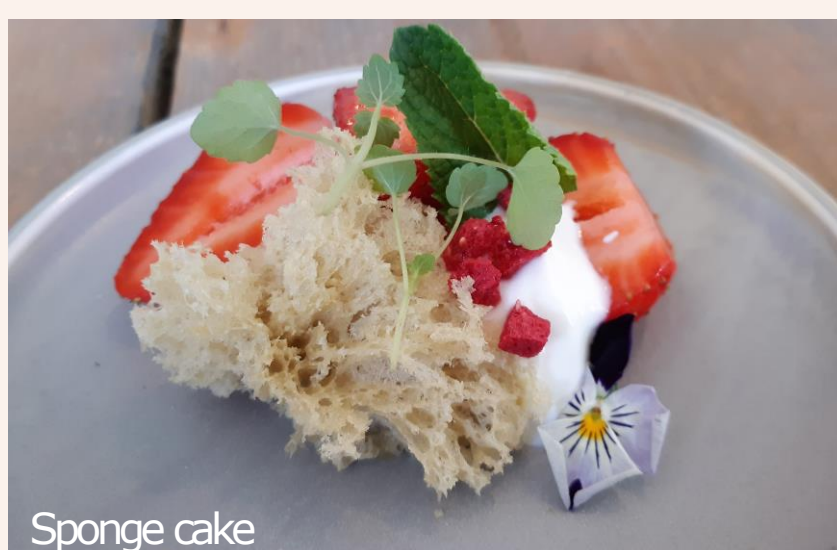
- The protein content is much higher after wet fractionation than after dry fractionation.
- The air classified protein powder is richer in micronutrients than the spray-dried pea protein.
- Toasting is done to reduce enzyme activity and off-flavours of the peas, but we found it also reduces antioxidants.
- Wrinkled peas are a good source of micronutrients.



The spray-dried pea protein was tested on taste and two delicious dishes were made:



Naan + peas spread



Sponge cake



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