Surplus peas to protein powder:
The effects on protein and micronutrient content using different fractionation methods for wrinkled peas

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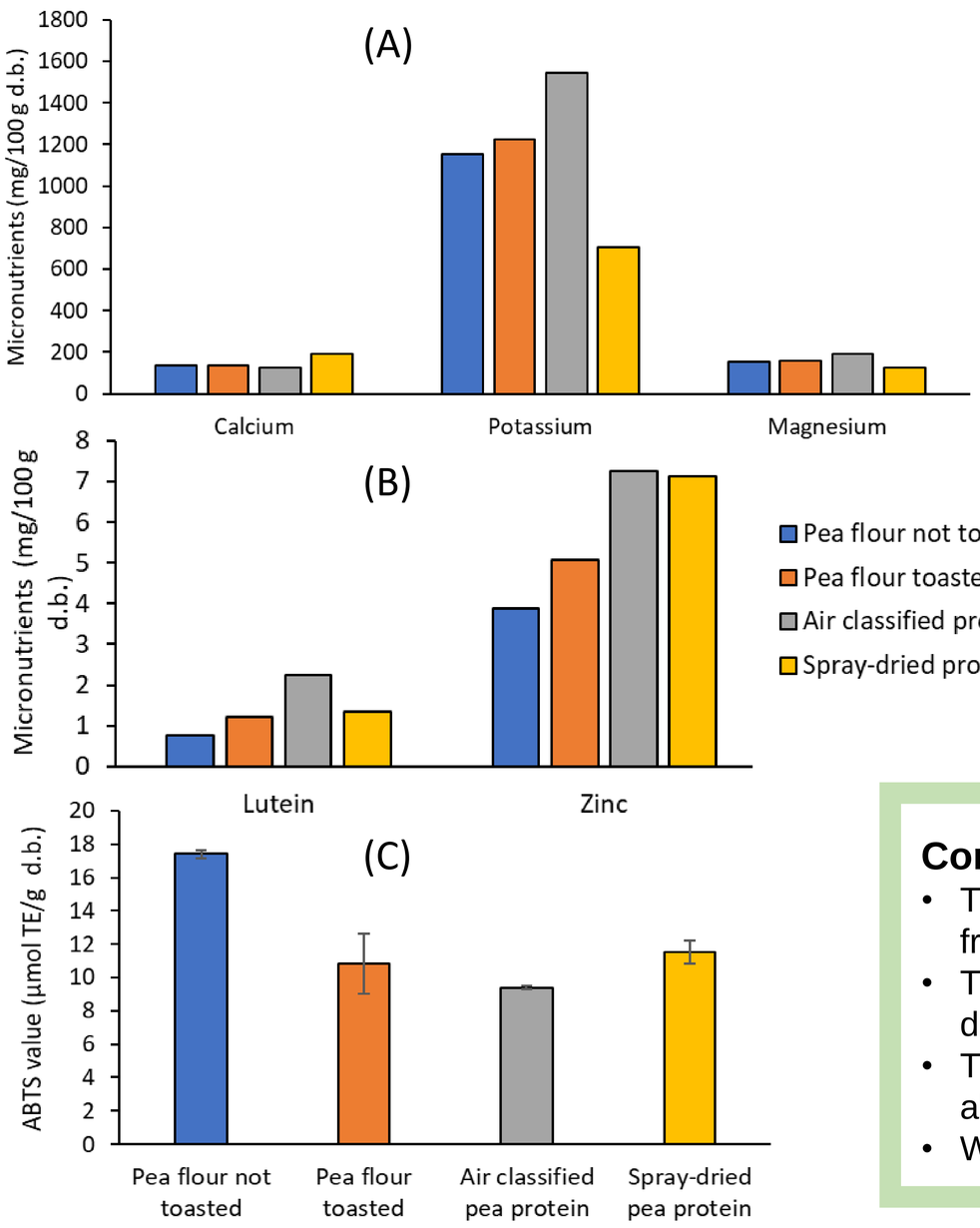
Introduction
Sweet peas are a popular product from the frozen and canning industry. They are usually overplanted to avoid shortage, and the surplus is left on the field to mature and dry to so-called wrinkled peas. Generally, the surplus goes to feed, but it is also a potential raw material to produce protein-rich powders:

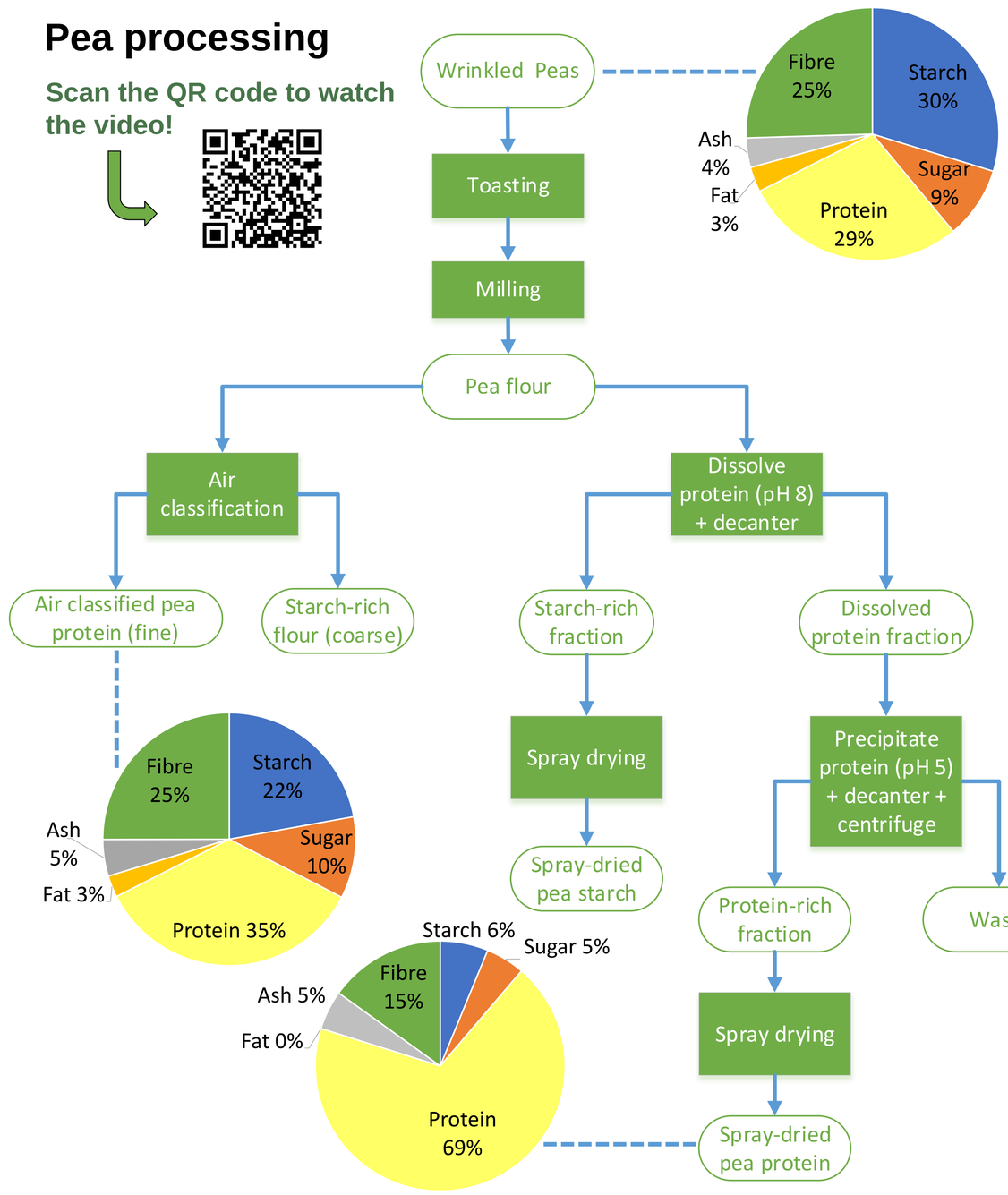
1. As supplement in food products for elderly and recovering patients who struggle to have a sufficient protein intake.
2. To increase intake of healthy micronutrients.

Therefore, the protein recovery was studied by using two fractionation processes. 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. Furthermore, the role of processing on relevant micronutrients - known to be deficient in elderly - was investigated.

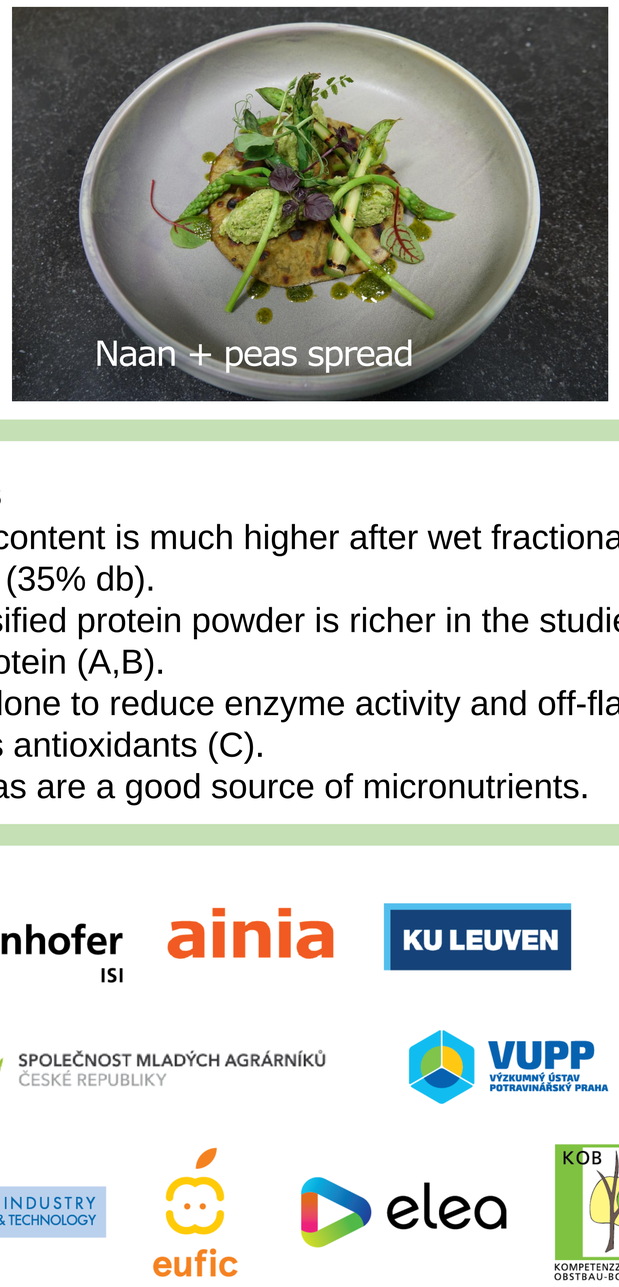
Results
- Air classification enriched the micronutrients in the protein-rich fraction except for calcium (A, B).
- After wet fractionation, only calcium and zinc are enriched in the protein fraction (A, B).
- The antioxidants (ABTS) are significantly reduced during toasting (C).
- On average 41% of the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



Pea processing
Scan the QR code to watch the video!



The spray-dried pea protein was used as main ingredient in two delicious dishes:



Conclusions
- The protein content is much higher after wet fractionation (69% db) than after dry fractionation (35% db).
- The air classified protein powder is richer in the studied micronutrients than the spray-dried pea protein (A,B).
- Toasting is done to reduce enzyme activity and off-flavours of the peas, but we found it also reduces antioxidants (C).
- Wrinkled peas are a good source of micronutrients.

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