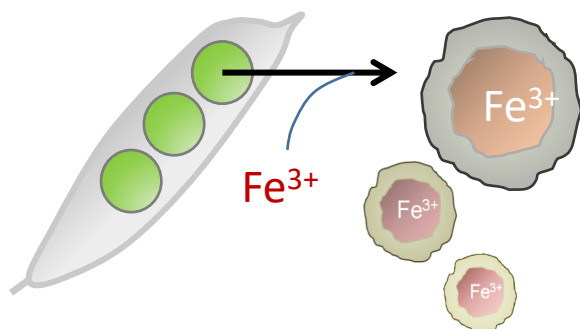


Analysis of ferritin iron in pea flour

"Through the input of science and support by John Innes Centre in this project, the speed to commercial establishment of the new start-up business and product development has been considerably accelerated." [AgriTopics Ltd](#)



Janneke Balk, John Innes Centre; Patrick Mitton, AgriTopics Ltd



Iron-rich ferritin nanoparticles can be extracted from peas

OUTCOMES: Peas are rich in nutrients and protein, but highly undervalued as a healthy part of our diet. In this project we tested the effect of different milling techniques on the extraction of ferritin, an iron-rich protein nanoparticle, from dried peas. We also investigated the nutritional profile of pea flour before and after ferritin extraction. We found that a specialised milling process, developed and optimised by the industry partner

AgriTopics, is as good, or even better than a range of alternative milling processes for the extraction of ferritin. We demonstrated that while the extraction procedure removes 3% of the sugars from the pea flour, fatty acids, protein and micronutrients remained in sufficient quantities for the flour to be used for food products.

INITIAL AIMS: Peas provide a rich source of proteins and nutrients for human diets. They also contain relatively high levels of iron in a form that is very easy for the body to absorb. To extract this high value component and/or use pea flour directly in food products, the first step is to mill the dry peas. Together with the industrial partner AgriTopics, we will evaluate different milling procedures, milling fractions and particle sizes to optimize this first step for producing nutritional flour and iron extraction. The project will provide the basis for the development of new iron supplements, which could also be used clinically to treat anaemia, and specialist flours for the food industry.

- This work enabled data-led food recipe trials to be conducted
- Academic group is now able to isolate the larger amounts of pea ferritin required to run human bioavailability trials
- Industrial partner will develop the pea flour for food/nutrition products