

Introducing oat protein!

Oatpro is an ERANET- Susfood project which runs from 2015 to 2018. The aim of the project is to evaluate the potential of oat protein concentrate as food ingredient and to develop its use in different food matrices.

www.oatpro.net

Oats (*Avena sativa* L.)



Oats (*Avena sativa* L.) are an important crop world-wide with the global production of 21 million ton per year of which 62% in EU (FAOSTAT, 2012). In EU-27 the top three oat producers are Poland, Finland and Germany. Oats are mainly used as feed for livestock: about 50 % is fed for cattle, and 25 % is used for food, seed and other industrial products. Protein comprises around 15–20% of dehulled groats. Oat protein has high-globulin, low-prolamin composition compared to other cereals providing a better balance of amino acids essential for humans. And even better, growing oat requires low agricultural inputs, making it an environmentally protein source if processed with sustainable technologies.

Challenges to come

OATPRO focuses on utilization of a stream from oat I fractionation process and functionalisation of the oat protein concentrate for application in diverse food applications. Although oat protein concentrates and isolates have been shown to have good emulsifying, binding and foaming properties they have poor solubility in the pH range of most foods (Figure 1).

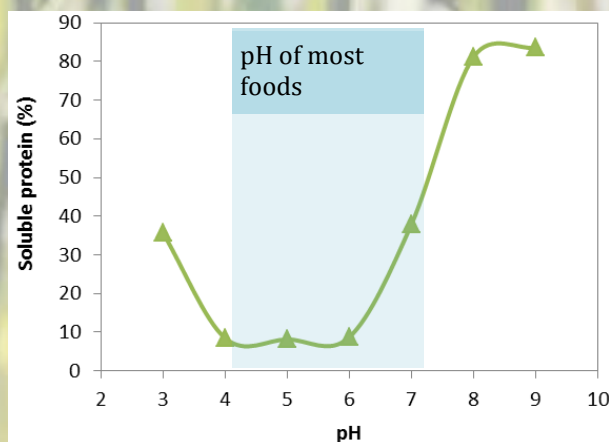


Figure 1. Solubility of oat protein isolate.

This limits their functionality and applicability especially in dispersed food systems. Some limitations also exist where heat induced gelation or coagulation is required (e.g. baking). In OATPRO, we are aiming to improve the functionality of oat protein concentrate by bioprocessing, thermal or pressure treatments.

✚ Market opportunities for oat protein and products made with oat protein

According to the focus group studies which were carried out in four countries (Denmark, Finland, Germany and Romania), suitable foods for oat protein enrichment should involve products that are used in the everyday diet, emphasising the healthiness and naturalness of the oat protein. Product convenience, sensory appeal, naturalness and sustainability are aspects that could be especially valued by the consumer. Trustworthy information and foods providing a healthy alternative to meat protein are also important factors to be considered.

✚ OATPRO so far...

Large scale oat fractionation was done based on the existing state of art of VTT. The fractions (oat protein concentrate, starch fraction and beta-glucan) were distributed to partners, and characterized based on the composition and functional properties. Currently, oat protein ingredients are being incorporated into various product prototypes: dispersed systems (beverage, yoghurt), solid foams (bread, snacks, biscuits), and solid food (pasta).

✚ Recent presentations

- Banovic, M. (2015). OATPRO: Consumer Knowledge, Perceptions and Preferences of Oat Protein-Enriched Food Products, seminar Aarhus University Denmark, 27th of April 2015.
- Banovic, M. (2015). Consumer Knowledge, Preferences and Perceptions of Food Products Enriched with Plant Proteins, Network meeting on Plant Proteins at Teknologisk Institut on 7th of May 2015, Aarhus, Denmark, 7th of May 2015.
- Duta, D., Mohan, G., Culetu, A. (2015). Poster "Project OatPro - Engineering of oat proteins: Consumer driven sustainable food development process", Annual Symposium of Romanian Milling and Baking Specialists edition XXIV: Innovative technologies in milling and baking industries for a sustainable development, October 1-3, 2015, Baia Sprie Suior, Romania.

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