



Characterization of secondary plant metabolites in byproducts from pea fibre processing

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Sustainable food production is of immense demand along the whole value-added chain. Pea hull byproducts can be used as sources of highly valuable compounds that are again applied for an enrichment of other foods. Often, health-promoting compounds such as fibres and secondary plant metabolites are of enormous interest and present in certain amounts in plant-deriving byproducts.

As part of the BMEL/BLE-funded project “Pea fibre 2.0 – Novel approaches for added-values by optimizing functional and nutritive properties of fibre-rich byproducts from pea processing”, the aim of this study is to consider secondary plant metabolites such as flavonoids and saponins from different pea fibre processing steps. Saponins are located in pea hulls in high quantities. The main substances are saponin B (soyasaponin I) and DDMP saponin (soyasaponin β g). DDMP saponin is not stable under certain conditions [1], which is of certain interest for the processing.

From a nutritional point of view, the meaning of saponins in the human diet is controversially discussed. On the one hand, they can have negative impact, because of their anti-nutrient and hemolytic properties. On the other hand, they are attributed to some health promoting effects such as anti-inflammatory, hypocholesterolemic, and immunestimulating activity and additionally already of great use of technofunctional emulsifying properties.

Notably, previous and primary results of the actual study confirmed that the content of saponins is predominantly located in the hulls and vary depending on the cultivar and processing steps. Furthermore, it has been shown that saponins in peas have no hemolytic characteristics. For further pea hull/saponin usage, it is necessary to gain more insights of the structure variation of the sugar units for optimizing emulsifying effects, saponin stability, and bioactive properties for potential health-beneficial effects.

Literature

Reim, V., Rohn, S. Characterization of saponins in peas (*Pisum sativum* L.) by HPTLC coupled to mass spectrometry and a hemolysis assay. Food Research International, 2015, 76, 3-10.

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