

**Untighten the close connection between proteins and polyphenols for better digestible food and feed**

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Current plant-based protein resources for food and feed industry have downsides in their limited land-use efficiency, nature destruction and enormous fertilization requirements: over 35 Mtons of soy is imported into EU-27 annually. To reduce soy consumption, other efficient protein feedstocks are sought. Aquatic biomass (algae, Lemna and Azolla) has high potential: protein-rich future crops with relatively low input costs and no competition with conventional systems. One concern with these aquatic sources is the high concentrations of polyphenols, which cause the limited digestibility of Azolla reported in academic literature. A refinery process is needed to selectively remove polyphenols or proteins from the biomass. Protein extraction methods were developed that allow selective removal of polyphenols for a protein extract of higher purity. However, the digestibility of these protein extracts needs testing to determine their feed quality and added value compared to crude Azolla.

With the FFU seed money, we will perform in vitro digestibility experiments at UU-VET on our protein extracts and parallel unrefined Azolla which functions as pilot data for the proposal. Following these experiments, and in preparation for the STW proposal, we will use part of the seed money to organize a workshop in Utrecht, in which several stakeholders from industry and academia are assembled, including a.o.: UU-GEO, UU-BIO, UU-VET, LPP Foundation, Wageningen University and Royal Canin. We will discuss our latest results on effective protein extraction and streamline the development of the STW proposal, in which all aforementioned parties take part.