**Proteomics assessment of conglutin seed storage protein diversity across six lupin species**

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The demand for novel plant-based protein sources is on the rise. Lupins, important members of legume family, are one of the richest natural sources of protein and fibre and can positively contribute to global food and nutritional security. Despite their potential, lupins remain under-utilised as human food and are predominantly grown as feed for livestock and aquaculture.

The major protein fractions in lupin grain, known as conglutins, are classified into four major families: α, β, γ and δ-conglutins. Each of these protein families possesses distinct nutritional and functional properties. For instance, γ-conglutins exhibit strong effects on lowering blood glucose levels and superior foaming and gelling properties. In contrast, β-conglutin proteins are known as the major lupin allergens. Thus, variations in conglutin protein levels across lupin genotypes can impact the quality and functionality of food products derived from these varieties [1].

In this study, mass-spectrometry based protein measurements were utilised to explore the diversity of seed storage protein across 24 lupin genotypes from six lupin species. This comparative study revealed substantial differences in the β- and γ-conglutin protein levels among the lupin species analysed. The knowledge obtained from this evaluation enables the identification of lupin varieties with higher desirable and lower levels of detrimental proteins, which can be used for commercial production or be exploited in breeding strategies for developing customised lupin varieties.

***References:***

[1] Cabello-Hurtado F. et al, 2016, J Proteomics, 143, p. 57.