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Title:

Gelation Dynamics of Fractionated Australian Pulse Proteins

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Preparation of Your Abstract

1. The title should be as brief as possible but long enough to indicate clearly the nature of the study. Capitalise the first letter of the first word ONLY (place names excluded). No full stop at the end.
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Introduction: Clearly state the purpose of the abstract
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Dry fractionation to extract plant proteins is a sustainable alternative to the resource-intensive traditional wet fractionation, as it uses minimal water and requires no post stabilization steps. However, dry fractionation has limitations, where the protein purity is inferior compared to wet extracted protein isolates. As a result, the gelation dynamics of dry fractionated protein concentrates and dry fractionated protein isolates differ, however, these differences are not completely understood. We investigate the gelation dynamics of two different Australian pulse proteins (Faba and Mung bean) which have different legumin/vicilin protein ratios, using a combination of Rheometry and Rapid Visco Analyzer. We find that wet fractionated isolates undergo gelation at a lower temperature compared to their dry fractionated counterparts. Furthermore, comparison of elastic moduli obtained using small amplitude oscillatory shear tests reveal that the gels prepared using wet fractionated isolates are stronger and firmer compared to gels prepared from dry fractionated concentrates. Amongst Faba and Mung bean, Faba bean with a greater legumin content forms stronger gels with lower gelation temperature, possibly owing to the different hydrophilicity of the amino acid compositions. We summarise our findings in a concentration-temperature master curve, which can help to synthesise plant protein gels of desired functional properties.