

## RHEOLOGICAL BEHAVIOR OF ACIDIFIED GELS PRODUCED FROM FABA BEAN PROTEIN CONCENTRATES

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The current emphasis on plant proteins as substitutes for animal proteins, due to growing consumer demand for healthier foods and awareness of environmental issues, gives rise to a number of questions regarding the application of such proteins. Pulses, which are an important source of proteins, are very promising candidates and particularly, faba bean (*Vicia faba* L.) have been highlighted as a potential source in plant-based analogues such as acidified emulsions imitating dairy yogurts. Therefore, the principal aim of this study was to evaluate the rheological behavior of acidified emulsions produced from different faba bean protein ingredients obtained by dry fractionation. To this end, the first step was to perform chemical acidification (using glucono-delta-lactone) on soluble faba bean proteins and rheological analyses on acid gels formed by these soluble proteins at different concentrations for five different cultivars. Three varieties were then selected for the production and analysis of the rheological behavior of yogurt-like emulsions (4 wt.% total protein and 2 wt.% rapeseed oil). The formation of acid gels by soluble proteins indicated a proportional relationship between protein concentration and gel strength, which, in turn, depended also of the faba bean cultivar. The rheological behavior of acidified yogurt-like emulsions produced by pre-selected faba bean protein concentrates showed the formation of strong gels with much higher storage modulus ( $G'$ ) values (1330-2240 Pa) than the ones found for standard commercial dairy yogurt (200-400 Pa). However, these results highlight the potential of plant protein ingredients in the production of dairy analogues.

### **Keywords:**

plant-based analogues, chemical acidification, functionality, acidified emulsions, rheology

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