

On treatment options to improve the functionality of pea protein in emulsions

Yong Wang¹, Hannah Mathew², Woojeong Kim², Celeste Clayton², and Cordelia Selomulya²

¹School of Chemical Engineering and Industrial Chemistry UNSW

²UNSW

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Abstract

Pea proteins are being widely investigated as a potential substitute for animal proteins due to health benefits and sustainability concerns. However, the limitations associated with functional properties of pea protein such as low solubility, result in poorer overall performance and render it less desirable for food applications such as plant-based milk, cream, or meat products. Different methods have been extensively studied to solve this issue. This review summarises recent and popular physical, chemical, and biological treatments used to modify the functional properties of pea proteins. The aim is to identify successful treatments, gaps in knowledge, and presenting a comprehensive analysis in methods to improve pea protein functionalities and the results after these treatments. It was concluded that chemical modification is by far the most effective in improving the solubility, emulsifying, and foaming properties of pea proteins, followed by biological treatment. The combination of different treatment methods, moreover, has shown some degree of success and provides a wider scope to improve pea protein functionalities, as a promising avenue for future studies.

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