

Novel High Protein Oilseed Hydrocolloids for Stabilising Food Systems

Olakunbi Olubi, Anthony Obilana, Veruscha Fester, Victoria Jideani

Cape Peninsula University of Technology, Cape Town, South Africa

Abstract

Many studies have been conducted on producing edible hydrocolloids from emerging sources, mostly made from edible parts of plants in recent years. However, not all underutilised potential hydrocolloid options have been explored from the seed part of plants. There are nutraceutical high protein emulsifiers with self-stabilising potential that are still un-researched. The process suitability's are still unknown for a long time, resulting in a lack of precision processing. This paper summarised the hydrocolloid potential of three oilseeds' characteristics, including their physicochemical and functional qualities with characteristic fingerprinting and product qualities. Nutritional and functionality is a powerful and versatile analytical tool for providing information about changes in the composition, structure, and interactions as a possible food hydrocolloid/emulsion. Despite their nutritional and functional benefits, *Moringa Oleifera* (moringa), *Citrullus mucosospermus* (Egusi) and *Citrullus Citroides* (makataan) have long been underused. Less is known of a possible hydrocolloid from these seeds. However, the thickening properties of egusi and moringa flour have been reported and established, while nothing is known about makataan seed flour profiling. The egusi flour protein of 6% (w/v) from past research is sufficiently high to produce properly crosslinked networks (724 Pa). Egusi gels prepared at 10% (w/v) protein in 0.15 M NaCl (22; 530 Pa) were superior to egusi gels treated with 0.5 M NaCl (8385 Pa), confirming salt as an additive influence its thickening tendencies. Reports have shown the effective coagulant properties of moringa seed, suggesting a possible hydrocolloid can be obtained from moringa seed yet to be researched. This review provides a brief overview of the current understanding of food hydrocolloids from oilseeds, focusing on how their functionalities relate to nutritional composition.