1	Effect of enzymatic hydrolysis on the physicochemical and
2	emulsifying properties of potato protein by using papain and
3	bromelain
4	賴姵璇(5129)
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6	Outline
7	1. Introduction
8	2. Physicochemical Characteristics of Potato Protein Hydrolysates
9	3. Emulsifying Properties of Potato Protein Hydrolysate Emulsions
10	4. Conclusion
11	Abstract
12	In recent decades, there has been increasing attention towards plant-derived food
13	proteins attributable to their economic, ecological and health benefits. Among plant-
14	derived proteins, potato protein stands out as an excellent ingredient owing to its
15	remarkable foaming and emulsifying properties. To enhance functional characteristics
16	of potato protein isolate (PPI), potato protein hydrolysate (PPH) was prepared using
17	papain and bromelain at different hydrolysis times (0.25-2h). Enzymatic hydrolysis
18	resulted in a reduction in molecular weight and an increase in solubility under acidic
19	conditions. However, only the foam stability (FS) of protein isolate treated with
20	bromelain was maintained, while papain-treated protein isolates showed decreased FS
21	as the degree of hydrolysis enhanced. Subsequently, the relations among emulsifying
22	properties of potato protein hydrolysate emulsions were investigated. Oil in Water (3:1)
23	emulsions were prepared using PPI, PPH and sorbitan eaters. The best emulsion ability
24	index was achieved by hydrolyzing potato protein with bromelain for 15 minutes.
25	Moreover, the emulsion prepared by PPH obtained by bromelain exhibited a smaller
26	polydispersity index and a higher zeta - potential with increased viscosity. To sum up,
27	partially hydrolyzed potato protein obtained by bromelain demonstrated promising
28	potential for utilization as plant-based emulsifier.