A Model System for Application of Konjac, Curdlan and Carrageenan in Meat Ball Processing

童瑞源、陳明造
E-mail: 9607889@mail.dyu.edu.tw

ABSTRACT

"Kung-wan", an emulsified meatball, is a very popular meat product in Chinese communities. It is different from western style meatballs. "Tradition kung-wan" (control group) major material are pork leg muscle (75%) and pork back fat (25%). Generally speaking, kung-wanes are required to have higher hardness, brittleness and elasticity. A three-factor relatable central composite design was adopted for these study gum-hydrates on qualities of low-fat Kung-wan. The study use different level of gum contain (0%, 5% and 10%), ( konjac premixed with Ca(OH)2) gel, (curdlan) gel, (κ-carrageenan) gel, ( curdlan and κ-carrageenan) gel, (κ-carrageenan and konjac with Ca(OH) 2)gel, (curdlan and konjac with Ca(OH)2)gel were chosen for further on texture, higher hardness, brittleness, elasticity and sensory qualities and fat substitutes of the low-fat kung-wan. The experimental result shows with the addition of different gum products provided are juicy; may be with WHC due to the addition of gum. "Kung-wan" adding of different gum product weightlessness and color there are not difference of showing to control group. Results indicated: The hardness, gel strength and hardness of TPA is also on was decreased after added to the (5%, 10%) singular gum (konjac gel, curdlan gel, κ-carrageenan gel). Addition(5%, 10%) mixture of gum (curdlan, κ-carrageenan) gel, (κ-carrageenan, konjac with Ca(OH)2)gel, (curdlan, konjac with Ca(OH)2)gel in contrary motion increase of TPA. Series reheating experiment indicated: The series reheating (70℃) process for either 1, 2, 3, or 4 hr gum-hydrates were insignificant except for gel strength and taste inferior to contrast group. As to frozen storage experiment (-18℃) process 15, 30, 45, or 60 day: The breading intensity, gel strength and hardness of TPA are also on increasing with after frozen storage. Except for add 10% konjac gel with contrast group looks than have situation that reduce, have apparent difference. Overall sensory evaluation, adds 5% of curdlan gel has the best acceptance. In conclusion, the aims of this study were to find a better method of addition of three-factor gum-hydrates to "Kung-wan" comparing to control low-fat in sensory and shelf stability without causing adverse effects on texture. Furthermore, it provided juiciness and chewiness to Kung-wan and attained higher overall acceptability.

Keywords : WHC(water holding capacity), TPA(texture profile analyses)