

## Abstract

The popularity of novel functional food led to an exploration of novel techniques such as 3D food printing as well as novel ingredients such as chicken liver. This research focuses on the formulation of the chicken liver gummy with various concentrations of iota carrageenan-gelatin mixture and its application to 3D food printing. The aim of this research is to evaluate the impact of hydrocolloid and 3D food printing on the gummy's texture and sensory acceptance. The result showed that the 8% hydrocolloid mixture improved the gummy's overall texture as it shows no significant difference with the commercially available samples. Not to mention the sensory evaluation the 8% gummy yields in a more accepted gummy with 6.33 points in likings while the other 2 formulations liking are ~ 5.55 point. The 3D food printing process also heavily impacts the acceptability of the gummy. The result showed that the 3D printed gummy's color and aroma is significantly more favorable than the conventional counterparts as the points increase from 7.27 to 8.10 and 4.83 to 6.47 respectively. The sensory result showed that the 3D printed gummy cohesiveness and gumminess is significantly more accepted with the point increased from 6.53 to 7.37 and 6.10 to 7.57 respectively. However, the 3D printing process did not significantly alter the texture of the gummy except for the springiness. The 3D printed gummy's springiness significantly decreased to 0.92 mm while the conventional gummy's springiness was 0.99 mm.

**Keywords:** *3D Food Printing, Iota Carrageenan, Gelatin, Gummy, Hydrocolloid, Chicken Liver*