

# Comparison of the storage stability of starch and pectin black raspberry confections

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Black raspberries (BRB) are a rich source of bioactive phytochemicals and nutrients, such as anthocyanins and ellagitannins. The phenolic compounds in BRB have drawn much attention recently due to their promising anticancer effect. Physicochemical properties such as texture and water content/activity may influence the phenolic compound stability and sensory acceptance during storage. Therefore, finding suitable food matrix with extended shelf life, higher physicochemical stability and production consistency is important in delivering the bioactive compound from BRB in clinical trials. The objective of this study is to assess the physicochemical stability of two different BRB matrices: Starch and pectin based gummies, under different storage temperature conditions for two months. Total water content, water activity ( $A_w$ ), texture, and rheological properties were measured for each type of confection during two-month storage under room temperature (RT) and 4 °C. All samples were selected randomly from three batches of scale-up productions with replicates for each test. There was no significant change in elasticity ( $G'$ ) for pectin stored at both RT and 4 °C. However, for starch gummy, room temperature storage had a significant increase in elasticity compared with fresh sample ( $P < 0.05$ ). Lower temperature storage overall reduced the water loss in starch confection, showing no significant change even after two months ( $P > 0.05$ ). However, the total water content of pectin gummy changed significantly during the entire storage time for both conditions ( $P < 0.05$ ). Starch confection maintained an  $A_w$  lower than 0.7 during storage, but the pectin gummy had  $A_w$  higher than 0.7, increasing the potential of microbial growth. The results from this study can be used to select storage conditions and suitable food matrix for BRB confections to be used in future human clinical trials.