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effect of chemical composite, puffing temperature and moisture content on physical properties of puffed apple and potato

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Puffing technique is the process that can improve physical properties of fruit and vegetable. However, the effect of chemical composite in foods on puffing characteristics is still lack of study. Therefore, potato and apple slices were comparative study on physical properties. Potato and apple were sliced into 2.5 mm thickness and 2.5 cm in diameter. Potato slices were treated by hot water blanching for 2 min while apple slices was not treatment. After that, they were dried in 3 steps. First step, they were dried by hot air at temperature of 90°C until their moisture content reached to 30, 40, and 50 % dry basis. Then they were puffed by hot air at temperature of 130, 150, and 170C for 2 min. Finally, they were dried again by hot air at temperature of 90C until their final moisture content reached to 4% dry basis. The experimental results showed that chemical composite of food affected on physical properties of puffed product. Puffed potato had higher volume ratio than those puffed apple because potato slices contains starch that could be generated sealed surface layer and therefore it potentially escape vapor during puffing. The higher starch content provided more hard texture and higher initial slope of potato than those apple. Puffing temperature and moisture content strongly affected on color, volume ratio, and textural properties of puffed potato slices. Increasing of puffing temperature and intermediate moisture content induced higher volume ratio and then lower hard texture. In addition, increasing of puffing temperature and moisture content provided higher drying rate of puffed product.

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