

**Title** Application of Microwave Vacuum on Drying Pumpkin Slices  
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#### **Abstract**

This research aims to develop a laboratory-scale prototype of a microwave vacuum dryer, and demonstrate the effects of drying conditions on the physical properties of dried pumpkin. Pumpkin was used as a model to produce a pumpkin chip. The microwave vacuum dryer, using a 2.45 GHz magnetron, was used to vary different microwave heating (280, 455, and 630 W). The vacuum range was varied from 1 to 10 kPa to allow moisture to evaporate at a lower thermal treatment. Different physical attributes (moisture content, color, and texture) were monitored during the drying period. The microwave vacuum prototype was successfully developed to allow MV drying to occur at different conditions, and the equipment was able to dry pumpkin producing the final moisture content less than 5 % (w.b.). The drying time was significantly reduced by increasing microwave power output, and the lowering of vacuum pressure created more expansion of pumpkin structure. The puffed structure was observed in many experiments, especially when high microwave power was provided. Furthermore, dehydrated products from the microwave vacuum drying possessed many desirable qualities in terms of color and texture.