Analysis of Intermediate Moisture Food by Electrical Conductivity for Product Index

陳雅雯、陳小玲 ; 王維麒

E-mail: 9417456@mail.dyu.edu.tw

ABSTRACT

ABSTRACT Intermediate moisture food (IMF)is one kind of product got rid of some moisture by the way of osmotic dehydration, then being dried by hot-air, then added a small amount of humectant like the D-sorbitol in the procedure. When IMF is compared with the low moisture products, has the variety in the flavor, bright-colored gloss, higher water content and longer shelf time. However, the free water content in the intermediate moisture food can greatly influence the shelf time. The research is tested by the electrical conductivity quantitative in the process of the intermediate moisture food being dried by osmotic dehydration (soaked in the Brix of 45 and 65 for three hours) and hot-air drying procedure (120°C), then the water mobility in the product would be varies. The data of water activity can be a verification. Then the monolayer water, electrical conductivity and changes of porosity in the sample of the procedure were experimented to set up a relevance with the electrical conductivity and water mobility ; and then it can be cooperated with the microorganism test to estimate the shelf time; finally the sample was observed by the electron microscope to verify its institutional framework change. Two kinds of fresh fruit vegetables were as the sources in the research, the result shows that the fresh fruit vegetables dealt with osmotic dehydration, its electrical conductivity and moisture and porosity content was lower than the fresh sample without drying. Besides its downward trend and the thickness of soaking in sugar solution has direct proportion, but electrolyte content (%) data show uptrend. Go on hot-air drying, the firm thickness of shape thing of hydrosphere increases by a wide margin, so the water mobility reduces; and the sample appears the solute blocking the hole after the over saturation so that the water mobility reduces. Therefore, the electrical conductivity, water activity, and moisture content present the downward trend. In addition, the drying procedure leads the structure of food to shrink, the porosity to reduce and drop. It is proved by the result of observing the institutional framework and change of samples through the electron microscope. Consequently, the decline of electrical conductivity can be regarded as an index of the decline of free water content and water mobility for intermediate moisture food. So it is confirmed by the mathematics mode set up by the data of electrical conductivity, porosity, moisture content and electrolyte. The result shows that electrical conductivity has the functions of being quality index and monitor in the procedure of producing intermediate moisture food. Key word: intermediate moisture food、electrical conductivity、water mobility

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