The Automation of Chinese Vermicelli Production and the Effect of Processing Conditions on Its Quality

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ABSTRACT

The effects of process automation and processing conditions on the quality of Chinese vermicelli were investigated by using statistic analysis and experimental method. A systematic automatic processing method was suggested instead of the conventional method of making Chinese vermicelli. The automatic processing procedures include a production line of supply of ingredients, mixing the ingredients, continuous rolling, forming vermicelli strip, cutting and shaping. All the production procedures controlled by using timer and electrical circuits. It was found that the suggested processing method would standardize the vermicelli production and increase the productivity while remain the same quality of flavor as conventional production method. In quality control of Chinese vermicelli, the effects of thickness of vermicelli strip, the amount of salted water added, and steaming time (0 min, 50 min, 75 min, and 110 min) on the color, tensile strength, and firmness of Chinese vermicelli were studied. The results indicated that the proper thickness of vermicelli strip was 3 mm under present investigation. By using the statistic ANOVA analysis, the CCD methods, an optimal relation among the breaking amount ratio , salted water added amount , relative humidity , thickness of vermicelli strip C is found. This formula gives a standard for the Chinese vermicelli production. The steaming time affected the properties of Chinese vermicelli, the color of Chinese vermicelli darkened as the steaming time increased. The firmness of Chinese vermicelli increased with the steaming time, the tensile strength of Chinese vermicelli also increased with the steaming time but it decreased for a longer steaming time.

Keywords : Chinese Vermicelli ; Process Automation ; Continuous Rolling ; Process Conditions ; Salt-Water Amount ; Relative Humidity ; Vermicelli Strip Thickness

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