

## **Banana powder production via foam mat drying**

### **ABSTRACT**

Banana puree is one of the main commercial banana products available in the market worldwide. However, like other purees, banana puree deteriorates quite rapidly and gets a chilling injury when refrigerated. Therefore, this study focused on the dehydration of banana puree using a foam mat drying (FMD) technique to prolong its shelf life. It involved whipping the banana puree to form foams with the help of whey protein concentrate (WPC) and carboxymethyl cellulose (CMC) as the foaming agent and foam stabilizer, respectively. The study evaluated the effect of different foaming agent percentages (5, 7.5, 10, 12.5 and 15%) and drying temperatures (50, 60, 70 and 80°C) on the production of the foam mat dried banana powder. Besides that, the drying curves of banana puree using FMD and oven drying methods were compared. The banana powders produced were also analyzed in terms of the foam density, moisture content, solubility, color (browning index) and flowability (caking strength). Based on the findings, the FMD technique has proven to produce a good quality banana powder better than the control sample especially at a higher foaming agent concentration (15%) and drying temperature (80°C). By using the FMD technique, the banana puree has the capacity to be dried three times faster compared to the conventional oven drying method to form a more stable banana powder.

**Keyword:** Banana; Drying; Foam mat drying; Fruit powder; Fruit puree