Processing Effects on Physicochemical Characteristics in Cake Production

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Cereal and puffed snacks are very popular in Korea. New products are introduced every year. The objective was to study the effects of various cake-puffing conditions on the physical and chemical properties of puffed cakes. Puffed cakes were prepared with a rice cake machine using the following independent variables: tempering moisture contents (15, 17, and 19%, wb), heating temperatures (240, 246, 252, and 258°C), and heating times (5, 6, 7, and 8 s). Higher moisture, higher heating temperature, or longer heating time produced cakes with a higher cake specific volume. Cakes became lighter in color at a lower heating temperature or a shorter heating time. The hardest cake was produced at 252°C for 5 s at 19% moisture content. The percent weight loss after tumbling decreased with increasing heating times and heating temperatures. Increased heating time resulted in more expanded products. The average rutin content decreased as the heating temperature or heating time increased. These results suggest that processing conditions, including tempering moisture, heating temperature, and heating time, significantly influenced physical and chemical qualities of puffed cakes such as specific volume, hardness, integrity, color, internal structure, and rutin content.

Keywords: Puffing, Cell Size, Physical Properties, Rutin

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