

Effect of Soaking Time and Roasting Temperature on Quality of Sorghum Flakes

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ABSTRACT

Millet offers a unique advantage for health being rich in micronutrients, particularly minerals and B vitamins as well as nutraceuticals. Flaking of millets has been successfully attempted by adapting the normal cereal flaking methods using a roller flaker. An attempt has been made to see the effect of soaking time and roasting temperature on flaking of sorghum. A total of 40 experiments were conducted by a combination of treatments to sorghum grain, namely, soaking in cold water for 12, 18, 24, 30 and 36 h, machine roasting at 200, 210 and 220 °C, open pan roasting at 125±2 °C and roller machine parameters, namely, speed of rollers at 60 rpm and 80 rpm and gap between the rollers at 0.1 mm. The highest yield of 93.27 % was obtained for flakes processed by 36 h soaking, open pan roasting at 125±2 °C and 60 rpm roller speed and lowest yield of 59.30 % for 24 h soaking, open pan roasting at 125±2 °C and 80 rpm roller speed. It was also observed that the yield obtained for different treatments was more at 60 rpm roller speed than at 80 rpm. It was observed that a moisture content of 9.20 % (wb) for flakes processed by 36 h soaking, open pan roasting at 125±2 °C and 60 rpm roller speed gave the highest and a lowest moisture content of 7.08 % (wb) for flakes processed by 24 h soaking, open pan roasting at 125±2 °C and 80 rpm roller speed. It was observed that a bulk density of 0.352 g/ml for flakes processed by 24 h soaking, open pan roasting at 125±2 °C and 80 rpm roller speed gave the highest and a bulk density of 0.317 g/ml for flakes processed by 36 h soaking, open pan roasting at 125±2 °C and 60 rpm roller speed gave the lowest. It was observed that the water absorption capacity of 106.607 g/100 g for flakes processed by 24 h soaking, open pan roasting at 125±2 °C and 60 rpm roller speed gave the highest and the water absorption capacity of 52.477 g/100 g for flakes processed by 36 h soaking, open pan roasting at 125±2 °C and 80 rpm roller speed gave the lowest. It was observed that a thickness of 0.947 mm for flakes processed by 36 h soaking, open pan roasting at 125±2 °C and 80 rpm roller speed gave the highest and a thickness of 0.757 mm for flakes processed by 24 h soaking, open pan roasting at 125±2 °C and 60 rpm roller speed gave the lowest. Based on the highest yield and lowest bulk density of flakes, it can be concluded that 36 h soaking time, pan roasting at 125±2 °C, roller flaking at 60 rpm and with 0.1 mm gap between the rollers were the process and machine parameters optimized.

Key words: *Bulk density, Sorghum, Yield, Thickness, Water absorption capacity,*