Effect of Processing Conditions on Yield, Physical and Chemical Properties of Shea Butter

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Abstract

Shea butter was extracted from nuts roasted at 140, 160 and 180°C for 30 min by the traditional water-displacement method and by using a screw press. Butter yields were determined. Some of the butter was bleached and free fatty acid, peroxide value, melting point, refractive index, specific gravity, smoke point, colour and flavor of bleached and unbleached shea butter were determined.

Shea butter yields increased significantly ($p \leq 0.05$) with increasing temperature of roasting the nuts. The traditional method of extraction yielded more shea butter than the screw press method ($p \leq 0.05$). Shea butter from the traditional method contained significantly higher free fatty acid content, which increased as the temperature of roasting increased. The peroxide value varied significantly with temperature of roasting and method extraction however, iodine number, saponification number and unsaponifiable matter of shea butter extracted by traditional and by the screw press methods were similar across the temperature gradient and unchanged by method of extraction. Bleaching improved the colour and flavor of shea butter extracted by the traditional method more ($p \leq 0.05$) than it did for butter expressed using the screw press. The physical properties of shea butter (melting point, smoke point, refractive index and specific gravity) were unaffected by temperature of roasting and method of fat extraction.

Keywords: Shea nuts, shea butter, nut roasting temperature, physical properties, sensory properties.