

Continuous infrared popping: Effect on key physicochemical attributes of popcorn

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The effect of continuous infrared (Co-IR) popping at different power (600, 700 and, 800 watts (W) Co-IR power) and constant distance from sample (5 cm) on the key physicochemical properties of popcorn (*Zea Mays L. var. Everta*) (popping properties, energy consumption, morphology (SEM), sensory properties, and color) was investigated. According to the popping properties results, optimum treatment for Co-IR popping of popcorn was 700 W Co-IR power. Color were significantly changed ($P < 0.05$) during Co-IR popping. L^* , a^* , b^* , ΔE , hue, and chroma values of Co-IR popped popcorn (700 W Co-IR power) were 71.40, -2.73, 15.44, 33.13 ± 1.92 , -1.40 ± 0.29 , and 15.68 ± 1.07 , respectively. The minimal energy usage was attained at 0.013 kWh at 800 W Co-IR power. In SEM analysis, with increasing the IR lamp power, the cavities size was increased (the cavities number per unit area decreased). The largest increase in the popcorn cavities size was determined at 800W Co-IR power. The highest consumer acceptance of Co-IR popped corns was obtained 700 W Co-IR power. This is the first study on Co-IR expansion technology for popcorn popping, and the findings show that the IR expansion method is very efficient in the popcorn popping process.