

Effects of temperature on drying rates and sensory qualities of sweetened maturing coconut meat (coco-crisps)

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ABSTRACT

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This study was conducted to determine the effect of temperature on the drying rates and sensory qualities of sweetened maturing coconut meat called coco-crisps at ambient humidity, constant air velocity and tray density.

The drying of sweetened maturing coconut meat at different temperatures (62-90 °C) using an air velocity of 0.25 m/s and a tray density of one layer deep consisted of a constant rate period (CRP) and two stages of the falling rate period (FRP). The CRP drying rates and FRP drying coefficient in both stages increased with temperature. The first stage FRP was faster than the second stage. The activation energy for drying of the product in the first stage FRP was 18.65 KJ/mole and was in the same range as other biological products like casein curd, potatoes and sugar beets. The activation energy for drying of the product in the second stage FRP was about three times higher than in the first stage FRP.

The color acceptability of the product dried down to a moisture content of 3% (dry basis) using drying temperatures of 64 and 80°C were not significantly different from each other and were better than the product dried at 96°C. The samples dried at 64 and 80°C remained white in color while the one dried at 96°C turned light brown in color. However, the product dried at 96°C was better than the other two products based on texture and overall acceptability.

Keywords: constant rate period. drying temperature. drying rates. falling rate period. sensory qualities. sweetened coconut meat.