

Pendugaan Umur Simpan Emping Jagung Mentah dan Goreng dengan Pendekatan Kadar Air Kritis

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INTISARI

Sebagai salah satu produk higroskopis, emping jagung sangat mudah mengalami kerusakan selama penyimpanan. Oleh karena itu, penentuan umur simpan emping jagung sangatlah penting bagi produsen dan konsumen. Penelitian ini bertujuan untuk mempelajari pola isoterm sorpsi lembab dan umur simpan emping jagung dengan metode Isoterm Sorpsi Lembab. Emping jagung mentah dan goreng dihancurkan kemudian dikeringkan dan disimpan dalam desikator kaca yang berisi 5 larutan garam jenuh (LiCl , K_2CO_3 , $\text{Mg}(\text{NO}_2)_3$, NaCl , dan K_2SO_4) dengan rentang RH antara 11-97% pada suhu 30°C hingga mencapai kadar air setimbang. Model persamaan yang digunakan untuk mengetahui pola isoterm lembabnya adalah persamaan GAB (*Guggenheim-Anderson-de Boer*), sehingga perlu diketahui kadar air awal, kadar air kritis, kadar air kesetimbangan, kemiringan kurva (*slope*), luas permukaan kemasan, dan berat produk. Konstanta permeabilitas plastik polietilen dan polipropilen dengan ketebalan 0,03 mm dan 0,08 mm juga diukur karena emping jagung komersil juga menggunakan plastik.

Hasil penelitian menunjukkan bahwa kedua sampel memiliki pola isoterm sorpsi lembab berbentuk kurva sigmoid. Emping jagung mentah dengan pengemas PE 0,08 mm memiliki umur simpan paling lama yaitu 709 hari, lebih lama dibandingkan emping jagung goreng pada jenis pengemas dan ketebalan yang sama, yaitu 589 hari.

Kata kunci : emping jagung, isoterm sorpsi lembab, umur simpan

Shelf Life Prediction of Raw and Fried Corn Chips using Critical Water Content Approach

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ABSTRACT

Due to its higroscopic property, corn chips is prone to deteoration during storage. Therefore, shelf life determination is very important for both producer and consumer. This study aimed to determine sorption isotherm curve in order to predict raw and fried corn chips. Samples were grinded, dried, and each was stored at 30°C into 5 glass desicator filled with various kind of saturated salts (LiCl, K₂CO₃, Mg(NO₂)₃, NaCl, and K₂SO₄), RH 11-97%, until equilibrium moisture content was obtained. Guggenheim-Anderson-de Boer (GAB) equation was used to calculate values which then put into sorption isotherm curve, thus several parameters such as initial moisture content, critical moisture content, equilibrated moisture content, slope, packaged matterial surface area, and weight product were measured. Permeability value of polyethylene and polypropilene with thickness 0,03 mm dan 0,08 mm were also measured since commercial corn chip usually packed into plastick.

Result of this research showed that both samples had sigmoidal moisture soprtion isotherm curve. Raw corn chips with PE bag 0,08 mm had longest shelf life of 709 days, while the fried ones had shorter period of 589 days.

Keywords: corn chip, moisture sorption isotherm, shelf life