

**KINETIKA KUALITAS FISIK BUAH NANAS (*Ananas comosus* L.)  
DENGAN CROWN SELAMA PENYIMPANAN DENGAN VARIASI SUHU**

**INTISARI**

Oleh :

**Muhammad Try Hartono**

**15/385464/TP/11333**

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Nanas merupakan buah yang menempati urutan produksi keempat terbesar di Indonesia. Buah nanas termasuk buah non-klimakterik yang mudah rusak, sehingga upaya untuk memperpanjang umur simpan buah dapat dilakukan dengan penyimpanan pada suhu dingin. Penelitian ini bertujuan untuk menganalisis kinetika buah nanas dengan *crown* selama penyimpanan dengan variasi suhu. Sampel penelitian berupa buah nanas varietas *Smooth Cayenne* yang disimpan pada suhu rendah (7 dan 15°C), dan perlakuan kontrol disimpan pada suhu ruang (25°C). Perubahan kualitas fisik nanas selama penyimpanan diamati dengan parameter *shell color*, warna kulit, warna daging buah, susut bobot, kadar air, tekstur, brix, dan pH. Pengamatan dilakukan dengan interval berkisar 2-3 hari hingga penyimpanan 16-20 hari tergantung suhu penyimpanan. Laju kerusakan buah berdasarkan parameter yang terukur dianalisis menggunakan pendekatan model kinetika dan Arrhenius. Hasil menunjukkan perubahan pada penyimpanan suhu rendah yaitu: *shell color* 0,00-5,56%, *hue* kulit 111,90-72,93°, *hue* daging 87,2-94,6°, *chroma* daging 33,34-38,60%, susut bobot 3,70-6,90%, *moisture* 694,49-621,54%, kekerasan 3,95-2,15kg/cm<sup>2</sup>, brix 14,28-15,25°, pH 3,63-3,45°. Penyimpanan kontrol: *shell color* 0,00-100%, *hue* kulit 112,21-62,16°, *hue* daging 77,8-87,2°, *chroma* daging 30,86-45,87%, susut bobot 13,87-13,89%, *moisture* 713,39-571,69%, kekerasan 3,90-1,98kg/cm<sup>2</sup>, brix 12,98-14,72°, pH 3,73-4,28°. Konstanta (k) laju kinetika pada suhu rendah *shell color* 0,2720-5,3594%/hari, *hue* kulit (-0,0033)-(-0,0307)°/hari, *hue* daging 0,4898°/hari, *chroma* daging 0,2529-0,6329%/hari, susut bobot 0,1939-0,3383%/hari, *moisture* (-2,0763)-(-3,8598)%/hari, kekerasan (-0,0679)-(-0,1013)(kg/cm<sup>2</sup>)/hari, brix 0,0591-0,0823°/hari, pH -0,0086°/hari. Perlakuan kontrol: *shell color* 7,7994-7,8622%/hari, *hue* kulit (-0,0383)-(-0,0388)°/hari, *hue* daging 0,6890 °/hari, *chroma* daging 0,9696%/hari, susut bobot 0,7837-0,8485%/hari, *moisture* -8,4339%/hari, kekerasan -0,1276(kg/cm<sup>2</sup>)/hari, brix 0,1108°/hari, pH 0,0163°/hari. Nilai A dan Ea (dalam J/mol.K) Arrhenius yaitu: *shell color* 2,03x10<sup>23</sup> dan -1,27x10<sup>5</sup>, *hue* kulit 1,40x10<sup>12</sup> dan -7,69x10<sup>4</sup>, *hue* daging 1,15x10<sup>2</sup> dan -1,24x10<sup>4</sup>, *chroma* daging 1,00x10<sup>9</sup> dan -5,12x10<sup>4</sup>, susut bobot 2,55x10<sup>9</sup> dan -5,45x10<sup>4</sup>, *moisture* 2,55x10<sup>10</sup> dan -5,41x10<sup>4</sup>, kekerasan 2,21x10<sup>3</sup> dan -2,41x10<sup>4</sup>, brix 1,92x10<sup>3</sup> dan -2,42x10<sup>4</sup>.

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Kata kunci: *Ananas comosus*, Arrhenius, kinetika, kualitas, penyimpanan

**KINETICS OF PHYSICAL QUALITY OF PINEAPPLE FRUIT (*Ananas comosus* L) WITH CROWN DURING STORAGE WITH TEMPERATURE VARIATION**

**ABSTRACT**

**By :**

**Muhammad Try Hartono**

**15/385464/TP/11333**

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Pineapple is the fruit that ranks the fourth largest production in Indonesia. Pineapple fruit is a non-climacteric fruit that is easily damaged, so the effort to extend the shelf life of the fruit can be done by storing it in cold temperatures. This study aims to analyze the pineapple kinetics with crowns during storage with temperature variations. The research sample was in the form of pineapple Smooth Cayenne varieties stored at low temperatures (7 and 15°C), and the control treatment was stored at room temperature (25°C). Changes in the physical quality of pineapple during storage were observed with shell color parameters, skin color, flesh color, weight loss, moisture content, texture, brix, and pH. Observations were carried out at intervals ranging from 2-3 days to 16-20 days of storage depending on storage temperature. Fruit damage rates based on measured parameters were analyzed using the Arrhenius and kinetic model approaches. The results showed changes in low temperature storage are: shell color 0,00-5,56%, skin hue 111,90-72,93°, flesh hue 87,2-94,6°, flesh chroma 33,34-38,60%, weight loss 3,70-6,90%, moisture 694,49-621,54%, firmness 3,95-2,15kg/cm<sup>2</sup>, brix 14,28-15,25°, pH 3,63-3,45°. Control treatment: shell color 0,00-100%, skin hue 112,21-62,16°, flesh hue 77,8-87,2°, flesh chroma 30,86-45,87%, weight loss 13,87-13,89%, moisture 713,39-571,69%, firmness 3,90-1,98kg/cm<sup>2</sup>, brix 12,98-14,72°, pH 3,73-4,28°. Constant (k) kinetics at low temperature are: shell color 0,2720-5,3594%/day, skin hue (-0,0033)-(-0,0307)°/day, flesh hue 0,4898°/day, flesh chroma 0,2529-0,6329%/day, weight loss 0,1939-0,3383%/day, moisture (-2,0763)-(-3,8598)%/day, firmness (-0,0679)-(-0,1013)(kg/cm<sup>2</sup>)/day, brix 0,0591-0,0823°/day, pH -0,0086°/day. Control treatment: shell color 7,7994-7,8622%/day, skin hue (-0,0383)-(-0,0388)°/day, flesh hue 0,6890°/day, flesh chroma 0,9696%/day, weight loss 0,7837-0,8485%/day, moisture -8,4339%/day, firmness -0,1276(kg/cm<sup>2</sup>)/day, brix 0,1108°/day, pH 0,0163°/day. The values of A and Ea (in J/mol.K) Arrhenius are: shell color 2,03x10<sup>23</sup> and -1,27x10<sup>5</sup>, skin hue 1,40x10<sup>12</sup> and -7,69x10<sup>4</sup>, flesh hue 1,15x10<sup>2</sup> and -1,24x10<sup>4</sup>, flesh chroma 1,00x10<sup>9</sup> and -5,12x10<sup>4</sup>, weight loss 2,55x10<sup>9</sup> and -5,45x10<sup>4</sup>, moisture 2,55x10<sup>10</sup> and -5,41x10<sup>4</sup>, firmness 2,21x10<sup>3</sup> and -2,41x10<sup>4</sup>, brix 1,92x10<sup>3</sup> and -2,42x10<sup>4</sup>.

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**Keyword:** *Ananas comosus*, Arrhenius, kinetics, quality, storage