

**EFFECT OF DRYING METHODS ON THE CHARACTERISTICS OF SNAKE
FRUIT LEATHER (*Salacca zalacca*)**

AJENG NADILA KUSUMAWATI
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ABSTRACT

Fruit leathers are dehydrated fruit-based products, usually presented as flexible stripes or sheets. According to the Thai Industrial Standard Institute, water activity (A_w) of fruit leather should not exceed than 0.6 and moisture content should be below 12%. One of the important processes to make good quality of fruit leather is drying process. Since this drying process will affect the characteristics of fruit leather. In this work, snake fruit leather was prepared by two different drying methods (1) hot air drying (50, 60 and 70°C) and (2) vacuum microwave (MWVD) assisted hot air drying 70°C for 3 hours (1200, 1800 and 2400W). Firstly, snake fruit was peeled and cleaned before make it into snake fruit leather. It was found that A_w , L^* value, total acidity and moisture content of snake fruit was 0.982, 51.43, 0.87% as malic acid and 83.19%, respectively. Next step, to optimize the snake fruit leather and drying time, snake fruit leather was dried using different drying methods (hot air drying and MWVD assisted hot air drying). It was found that using hot air drying gave shorter time with higher temperature to dry the leather, it took 23, 19 and 10 hours, for drying at 50, 60 and 70°C, respectively. In addition, MWVD with different powers (1200, 1800 and 2400W) assisted hot air drying 70°C for 3 hours was applied. It was found that under MWVD with different powers 1200, 1800 and 2400W was took 6, 2 and 2 minutes, respectively ($p < 0.05$) and used less drying time than hot air drying. The characteristics of snake fruit leather using MWVD assisted hot air drying had high decreasing value of moisture content and water activity. It was found that the moisture content of snake fruit leather was 11.65, 11.81 and 10.38%, while A_w was 0.334, 0.371 and 0.324, respectively ($p < 0.05$). Furthermore, snake fruit leather using MWVD assisted hot air drying had higher color L^* value than the one from hot air drying. Reducing sugar increased during drying process with higher temperature and power applied ($p < 0.05$) that correlated with darken color. In addition, the hardness of snake fruit leather was increased when increasing the temperatures (93.40-114.26N) and powers (61.82-117.48N) during drying ($p < 0.05$).

Keywords: Fruit Leather, snake fruit, temperature, drying method

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INTISARI

Leather buah adalah produk buah yang ter-dehidrasi, biasanya disajikan sebagai lembaran fleksibel. Aktivitas air (A_w) *fruit leather* $< 0,6$ dan kadar air $< 12\%$ (TISI, 2015). Pengeringan pada *leather* mampu mempengaruhi karakteristik *fruit leather*. Pada penelitian ini, salak *leather* disiapkan dengan dua metode pengeringan yang berbeda yaitu pengeringan udara panas (50, 60 dan 70°C) dan vakum microwave (MWVD) dibantu pengeringan udara panas 70°C selama 3 jam (1200, 1800 dan 2400W). Daging salak dibersihkan sebelum dijadikan salak *leather*. Hasil penelitian menunjukkan bahwa salak mengandung karakteristik kimia dan fisika yang tinggi seperti A_w , L^* dan kadar air. Selanjutnya, untuk mengoptimalkan salak *leather* dan waktu pengeringan, *leather* dikeringkan menggunakan metode pengeringan yang berbeda. Hasil penelitian menunjukkan bahwa menggunakan pengeringan udara panas memberikan waktu yang lebih singkat dengan suhu yang lebih tinggi untuk mengeringkan *leather* (23, 19 dan 10 jam). Selain itu, pengaplikasian MWVD dengan daya yang berbeda dibantu pengeringan udara panas 70°C selama 3 jam, menunjukkan bahwa masing-masing membutuhkan waktu 6, 2 dan 2 menit ($p < 0,05$) dengan waktu pengeringan lebih sedikit daripada pengeringan udara panas. Karakteristik salak *leather* menggunakan MWVD dibantu pengeringan udara panas memiliki nilai kadar air (11,65; 11,81 dan 10,38%,) dan A_w (0,334; 0,371 dan 0,324) yang lebih rendah. Selanjutnya, *leather* menggunakan MWVD dibantu pengeringan udara panas memiliki L^* yang lebih tinggi daripada *leather* dari pengeringan udara panas. Gula reduksi meningkat selama pengeringan dengan penggunaan suhu dan daya yang lebih tinggi ($p < 0,05$) yang berkorelasi dengan warna gelap. Selain itu, kekerasan *leather* meningkat saat suhu dan daya ditingkatkan selama pengeringan ($p < 0,05$).

Keyword: *Leather* buah, salak, suhu, metode pengeringan