

**Pengaruh Starter Kering Sourdough Pisang Terhadap  
Karakteristik Fisikokimiawi Mantou (*Chinese Steamed Bread*)  
Tepung Komposit Pisang dan Terigu**

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*Effect of Freeze-dried Banana Sourdough Starter on the Physicochemical  
Characteristics of Mantou (*Chinese Steamed Bread*) Made from  
Composite Banana and Wheat Flour*



**TESIS**

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22.I3.0003**

**PROGRAM MAGISTER TEKNOLOGI PANGAN  
FAKULTAS TEKNOLOGI PERTANIAN  
UNIVERSITAS KATOLIK SOEGIJAPRANATA  
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Diajukan dalam Rangka Memenuhi Salah Satu Syarat  
Memperoleh Gelar Master Teknologi Pangan

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## RINGKASAN

Membuat *starter* kering *sourdough* pisang dan menambahkannya ke dalam adonan mantou dari tepung komposit pisang dan terigu merupakan suatu strategi untuk menghasilkan produk makanan kesehatan. Penelitian ini bertujuan untuk mengetahui pengaruh *starter* kering *sourdough* pisang terhadap karakteristik fisikokimiawi mantou dari tepung komposit pisang dan terigu. *Starter* kering *sourdough* pisang dinkubasi dengan perlakuan 5, 7 dan 9 hari (FD-5, FD-7, FD-9) dan dikeringkan dengan *freeze-dryer*. Sementara mantou dibuat dengan formulasi perbandingan komposit terigu dan tepung pisang, 60 : 20 dan ditambahkan masing-masing sebanyak 9 dan 15% *starter* kering *sourdough* pisang (FD-5, FD-7, FD-9) sebagai perlakuan. KA merupakan kontrol pada mantou dengan 100% terigu dan 0% *starter* kering *sourdough* pisang. KB merupakan kontrol dengan komposit terigu dan tepung pisang, 60 : 20 tanpa penambahan *starter* kering *sourdough* pisang. Data dianalisis menggunakan *software* SPSS dengan metode *one-way ANOVA* dengan signifikan perbedaan ( $p < 0,05$ ). Berdasarkan hasil penelitian, *starter* kering *sourdough* pisang menunjukkan penurunan pH dan kenaikan TAT selaras dengan lama waktu fermentasi. Jumlah mikroba pada FD-5 terbanyak yaitu  $9,3 \pm 7,8 \times 10^8$  CFU/g dibanding FD-7 dan FD-9. Pada pengukuran analisis fisikokimiawi pada mantou, perlakuan pemberian tepung pisang dan *starter* kering *sourdough* pisang memberikan efek pada warna, penurunan pH, volume spesifik, kenaikan TAT dan kekerasan sampel. Kenampakan warna mantou berubah seperti warna dari tepung pisang yang ditambahkan. Pemberian *starter* kering *sourdough* pisang inkubasi 5 hari dengan konsentrasi 15% pada mantou (5E) secara efisien memberi dampak positif pada karakter fisikokimiawi mantou. Penurunan pH mantou diindikasikan oleh penambahan *starter* kering *sourdough* pisang. Kandungan serat dan mineral dari tepung pisang, serta penambahan *starter* kering *sourdough* pisang berpengaruh terhadap penurunan volume dan tekstur dari mantou.

## SUMMARY

*Creating a dried banana sourdough starter and incorporating it into Mantou dough made from a composite of banana and wheat flour is a strategy to produce health food products. This research aims to determine the impact of the dried banana sourdough starter on the physicochemical characteristics of Mantou made from banana and wheat flour composite. The dried banana sourdough starter was incubated with treatments of 5, 7, and 9 days (FD-5, FD-7, FD-9) and then freeze-dried. Meanwhile, Mantou was prepared with a formula ratio of wheat to banana flour at 60:20, with the addition of 9% and 15% dried banana sourdough starter (FD-5, FD-7, FD-9) respectively as treatments. KA represented the control in Mantou with 100% wheat flour and 0% dried banana sourdough starter. KB was the control with a wheat and banana flour composite of 60:20 without the addition of dried banana sourdough starter. Data were analyzed using SPSS software with the one-way ANOVA method, with a significance difference ( $p < 0.05$ ). According to the research results, the dried banana sourdough starter showed a decrease in pH and an increase in Total Acid Titratable (TAT) in line with the fermentation time. The microbial count in FD-5 was the highest at  $9.3 \pm 7.8 \times 10^8$  CFU/g compared to FD-7 and FD-9. In the physicochemical analysis of Mantou, the treatment of adding banana flour and dried banana sourdough starter had an effect on color, pH reduction, specific volume increase, TAT increase, and hardness of the samples. The appearance of the Mantou color changed to resemble the color of the added banana flour. The addition of a 5-day incubated dried banana sourdough starter with a 15% concentration in Mantou (5E) efficiently provided a positive impact on the physicochemical characteristics of Mantou. The pH reduction in Mantou was indicated by the addition of dried banana sourdough starter. The fiber and mineral content of the banana flour, as well as the addition of dried banana sourdough starter, affected the reduction in volume and texture of the Mantou.*