

**PENGARUH UKURAN CACAHAN DAN LAMA FERMENTASI KULIT  
BUAH KAKAO (*Theobroma cocoa L.*) MENGGUNAKAN  
*Aspergillus ficuum* TERHADAP KOMPOSISI KIMIA  
DAN PRODUKSI GAS SECARA *IN VITRO***

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**INTISARI**

Penelitian ini bertujuan untuk mengetahui pengaruh ukuran cacahan dan lama fermentasi kulit buah kakao (*Theobroma cocoa L.*) menggunakan *Aspergillus ficuum* terhadap komposisi kimia dan produksi gas secara *in vitro*. Penelitian ini menggunakan isolat murni *Aspergillus ficuum* BPT yang diperoleh dari Balai Penelitian Ternak Ciawi, Bogor. Kulit buah kakao (KBK) dicacah dengan tiga ukuran cacahan yakni; tidak beraturan (TB), 3 x 5 cm, dan 5 x 5 cm. Fermentasi dilakukan 0, 5 dan 9 hari setelah itu dipanen dan dilakukan analisis kimia. Data yang diperoleh dianalisis statistik dengan analisis variansi pola faktorial 3X3 kemudian apabila terdapat perbedaan yang nyata diuji dengan Duncan's new multiple range test (DMRT). Hasil penelitian menunjukkan ukuran cacahan tidak beraturan menurunkan kadar terhadap kadar bahan kering (BK), bahan organik (BO), serat kasar (SK), lemak kasar (LK), bahan ekstrak tanpa nitrogen (BETN) ( $P < 0,05$ ) dan menaikkan protein kasar (PK) ( $P < 0,05$ ). Dengan lama fermentasi 5 hari menurunkan ( $P < 0,05$ ) BK 27,90%, BO 28,24%, SK 22,46%, LK 54,94%, BETN 36,72% dan lama fermentasi 9 hari menurunkan ( $P < 0,05$ ) BK 38,24%, BO 39,40%, SK 28,79%, LK 74,07%, BETN 52,98%. Fermentasi 5 dan 9 hari menaikkan PK ( $P < 0,05$ ) sebesar 9,94% dan 13,43%. Dapat disimpulkan bahwa ukuran cacahan tidak berpengaruh nyata ( $P > 0,05$ ) pada produksi gas dan lama fermentasi berpengaruh nyata pada produksi gas (22,86/200 mg s/d 24,63/200 mg).

Kata kunci : Fermentasi, *Aspergillus ficuum*, Kulit buah kakao, Ukuran cacahan, Produksi gas, *In vitro*

**EFFECT OF CHOPPED SIZE AND DURATION OF FERMENTATION USING  
*Aspergillus ficuum* ON CHEMICAL COMPOSITION AND IN VITRO  
GAS PRODUCTION OF COCOA POD (*Theobroma cacao* L.)**

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**Abstract**

This research aims was to find out the effect of chopped size and duration of fermentation using *Aspergillus ficuum* on chemical composition and in vitro gas production of cocoa pod (*Theobroma cacao* L.). Pure isolate of *Aspergillus ficuum* used in this research was obtain from Center for Animal Husbandry Research, Ciawi, Bogor. The cacao was chopped into three sizes, which were, random size, 3 x 5 cm, and 5 x 5 cm, then were fermented in 3 different incubation timei.e. 0, 5, and 9 days. At the end of incubation, fermented cacao pod were harvested and analyzed of its chemical coposition. Analysis of variance of 3 x 3 factorial design was used for data analysis. Differences between means were analyzed using Duncan's new multiple range test (DMRT). Results of the experiment showed that chopped size of is reduces on dry matter (DM), organic matter (OM), crude fiber (CF), extract ether (EE), nitrogen free extract (NFE) ( $P < 0.05$ ) and increases crude protein (CP) ( $P < 0.05$ ). The 5 days fermentation decreased content of BK 27.90%, BO 28.24%, SK 22.46%, LK 54.94%, BETN 36.72% ( $P < 0.05$ ) and 9 days fermentation decreased content of BK 38.24%, BO 39.40%, SK 28.79%, LK 74.07%, BETN 52.98% ( $P < 0.05$ ), but 5 and 9 days fermentation increased content of CP ( $P < 0.05$ ). In conclusion, chopped size had no significant difference on gas production ( $P > 0.05$ ); however, it had a significant difference on gas production of fermentation (22.86ml/200mg to 24.63ml/200mg).

Key words: Fermentation, Chopped size, *Aspergillus ficuum*, Cocoa pods, Gas production, *In vitro*.