

**KECERNAAN *IN VITRO* MONOGASTRIK BUNGKIL INTI KELAPA
SAWIT FERMENTASI MENGGUNAKAN ISOLAT BAKTERI
SELULOLITIK BELALANG KEMBARA
(*Lokusta migratoria L.*)**

**Bismo Adityo
08/269802/PT/05494**

INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh fermentasi dengan penambahan isolat bakteri selulolitik dari belalang kembara (*Lokusta migratoria L.*) terhadap pencernaan *in vitro* bungkil inti kelapa sawit (BIKS). Bakteri selulolitik didapat dari cairan isi perut belalang yang telah dilakukan pengkayaan dan pertumbuhan. Fermentasi BIKS akan dilakukan dengan perbedaan jumlah level isolat yang digunakan sebanyak 0, 10, 20 dan 30% kemudian waktu fermentasi yaitu 21 hari. Setelah itu dianalisis komposisi kimia meliputi serat kasar (SK), protein kasar (PK), lemak kasar (LK), bahan kering (BK), dan bahan organik (BO). Kecernaan diukur dengan metode *in vitro* monogastrik meliputi pencernaan bahan kering (KcBK), pencernaan bahan organik (KcBO), kadar protein tercerna dan gula reduksi. Data yang diperoleh dianalisis menggunakan analisis variansi pola searah kemudian dilanjutkan dengan *Duncan's new multiple range test* (DMRT). Penurunan SK dan kenaikan BETN pada hasil fermentasi berakibat naiknya kadar gula pada produk hasil *in vitro*. Penambahan level inokulum selulolitik sebesar 10%, 20%, dan 30% menyebabkan kenaikan kadar gula mereduksi BIKSF sebesar 12,39%, 20,33% dan 27,98% ($P < 0,05$) dibanding dengan kontrol selain itu penambahan level inokulum sebesar 20% dan 30% menaikkan kadar protein sebesar 22,25% dan 21,74% ($P < 0,05$) dibandingkan dengan kontrol. Penambahan level inokulum selulolitik sebesar 20 dan 30% dapat menaikkan pencernaan bahan kering (KcBK) sebesar 11,89 dan 13,37% ($P < 0,05$) serta pencernaan bahan organik (KcBO) naik sebesar 18,02 dan 22,81% ($P < 0,05$) dibanding kontrol. Berdasarkan hasil penelitian yang telah dilakukan dapat diambil kesimpulan bahwa fermentasi bungkil inti kelapa sawit dengan penambahan bakteri selulolitik belalang kembara (*Lokusta migratoria L.*) sebesar 20% dapat meningkatkan pencernaan nutrisi secara *in vitro*.

Kata kunci : Bungkil inti kelapa sawit fermentasi, Isolat selulolitik, Pencernaan *in vitro*, Belalang kembara.

MONOGASTRIC *IN VITRO* DIGESTIBILITY OF PALM KERNEL CAKE FERMENTATION USING CELLULOLYTIC BACTERIA FROM MIGRATORY GRASSHOPPER (*Lokusta migratoria L.*)

Bismo Adityo
08/269802/PT/05494

ABSTRACT

This research was conducted to determine the effect of fermentation with the addition of cellulolytic bacteria which had isolated from migratory grasshopper (*Lokusta migratoria L.*) on *in vitro* digestibility of palm kernel cake (PKC). Cellulolytic bacteria isolated from extract digestive gut of grasshopper that had been enriched and grows. Fermentation PKC was done with different levels of the isolates by 0, 10, 20, and 30% then fermented for 21 days. Fermented PKC was analyzed chemical composition including crude fiber, crude protein, crude fat, dry matter, and organic matter. The digestibility was measured by the method of the monogastric *in vitro* which including dry matter digestibility, organic matter digestibility, digested protein content (Lowry) and reducing sugar. Data were analyzed using analysis of variance test pattern in unidirectional the Duncan's new multiple range test (DMRT). The decline of crude fiber and increased nitrogen free extract on fermented sugar levels rise resulting in a outcome product *in vitro*. Addition of cellulolytic inoculum levels by 10%, 20% and 30% led to increased levels of reducing sugar content in PKC at 12,39%, 20,33% and 27,98% ($P < 0,05$) compared with controls other than the addition of inoculum by 20% and 30% increased the protein content by 22,25 and 21,74% ($P < 0,05$) compared with controls. Addition of cellulolytic inoculum level by 20 and 30% increased the digestibility of dry matter 11,89 and 13,37% ($P < 0,05$) and organic matter rose by 18,02 and 22,81% ($P < 0,05$) compared to controls. Based on the research that has been done can be concluded that the fermentation of palm kernel cake with the addition of cellulolytic bacteria from migratory grasshopper (*Lokusta migratoria L.*) by 20% can increase nutrient digestibility *in vitro*.

Key words : Palm kernel cake fermentation, Cellulolytic isolate, *In vitro* digestibility, Migratory grasshopper