PENGKAYAAN MIKROBIA SELULOLITIK ANAEROBIK DARI ALAT PENCERNAAN KETAM (*Eriocheir sinensis*) DAN APLIKASINYA PADA PENINGKATAN KECERNAAN JERAMI HERMADA (*Sorghum bicolor ssp*)

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INTISARI

Penelitian ini bertujuan untuk melakukan pengkayaan mikrobia selulolitik an aerobik dari alat pencemaan ketam dan aplikasinya sebagai inokulan pada fermentasi jerami Hermada. Penelitian berlangsung dalam dua tahap. Tahap pertama pengkayaan dengan menginokulasikan sumber mikrobia dari alat pencemaan ketam pada medium selektif. Kemudian hasil pengkayaan tersebut direinokulasikan pada medium pertumbuhan. Keberadaan mikrobia selulolitik diketahui melalui uji aktivitas enzim CMC-ase dan (3-glukosidase. Tahap kedua fermentasi jerami Hermada selama 21 hari dengan penambahan mikrobia dari medium pertumbuhan dengan perlakuan 0 (kontrol), 5 dan 10% dari berat jerami. Variabel yang diamati adalah produksi gas secara *in vitro*. Data yang diperoleh dianalis variansi dengan rancangan lengkap pola searah. Perbedaan variabel karena perbedaan perlakuan dianalisis dengan uji DMRT. Hasil analisis uji aktivitas enzim pada cairan ketam, medium selektif dan medium pertumbuhan menunjukkan perbedaan sangat nyata (P<0,01) dengan aktivitas enzim CMC-ase berturut-turut 14,915; 58,920 dan 6,430 pg/mg prot/menit dan untuk (3-glukosidase berturut-turut 2,894; 0,910 dan 0,324 pg/mg prot/menit. Hasil analisis produksi gas secara kumulatif menunjukkan perbedaan sangat nyata (P<0,01) dengan rerata 43,750; 53,667 dan 60,000ml/300 mg BK sedangkan nilai a (fraksi mudah larut) menunjukkan perbedaan tidak nyata. Nilai b (fraksi potensial terdegradasi) menunjukkan perbedaan nyata (P<0,05) dengan rerata 59,958; 76, 130 dan 81,522% dan untuk nilai c (laju degradasi b) menunjukkan perbedaan tidak nyata. Nilai DT (Degradasi Teori) menunjukkan perbedaan sangat nyata (P<0,01) dengan rerata 15,756; 18,947dan 22,533%. Hasil penelitian dapat disimpulkan bahwa dapat diperoleh mikrobia selulolitik dari alat pencemaan ketam dan penambahan inokulum dapat meningkatkan kecemaan fermentasi jerami Hermada.

(Kata kunci : Ketam, Pengkayaan Mikrobia Selulolitik, Inokulum, Fermentasi, Produksi Gas)

ENRICHMENT OF ANAEROBIC CELLULOLITIC MICROORGANISM FROM CRAB DIGESTION ORGAN *(Eriocheir sinensis)* AND ITS APPLICATION FOR DIGESTIBILITY IMPROVEMENT OF HERMADA STRAW *(Sorghum bicolor ssp)*

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ABSTRACT

The objective of this experiment was to carried out the enrichment of anaerobic cellulolytic microbes from crab digestion organ and its application as inoculan for Hermada straw fermentation. The study was conducted in two stages. First, the enrichment was done by inoculation of sample as microbial source from crab digestion organ into the limited medium. The anaerobic cellulolytic mix-culture as inoculant from the result of enrichment was produced by reinoculation into the growth of medium. The existence of cellulolytic microbes was detected by enzyme CMC-ase and p-glucosidase test. Second, Hermada straw fermentation was done for 21 days with analysis different inoculant percentage (0%, 5% and 10%) of Hermada used. Variables observed were the enzyme activity and the gas production through in vitro with gas test. The collected data were analyzed using variancy analysis with One Way Classification of Completely Randomized DesigaThe different variable caused by different inoculant addition were analyzed with Duncan Multiple Range Test. The result of enzyme activity test on crab liquid, limited medium and growth medium showed differences in enzyme CMC-ase activity (P<0,01) in the order of 14,915; 58,920 and 6,430 pg/mg prot/menit and p-glucosidase 2,894; 0,910 and 0,324pg/mg prot/menit. The result of gas production showed differences on gas produced (P<0,01) and its are 43,750; 53,667 and 60,000/300 mg DM. The value of a (soluble fraction) indicated a non significant. The value of b (potentially degradated fraction) showed a significant (P<0,05) and its means are 59,958; 76,130 and 81,522ml/hour while the value of c (rate of degradated of b fraction) showed a non significant. The value of DT (degradated theory) showed differences (P<0,01) with its means 15,756; 18,947 and 22,533%. Finally the conclusion of this experiment that cellulolytic anaerobic mix-culture microbes can be produced from crab digestion organ and anaerobic cellulolytic mix-culture addition improved digestibility of Hermada straw fermentation.

(Key words : Crab, Enrichment Cellulolytic Microbes, Inoculum, Fermentation, Gas Production)