

PENGARUH PENAMBAHAN CaCO₃ DAN LAMA PENYIMPANAN TERHADAP KUALITAS CAMPURAN ISOLAT SELULOLITIK DAN APLIKASINYA SEBAGAI DONOR MIKROBIA PADA EVALUASI JERAMIPADISECARA IN VITRO

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INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh penambahan CaCO₃ pada Isolat Campuran selulolitik unggul (ICSU) terhadap pH dan total koloni isolat selama penyimpanan, serta aplikasinya sumber mikrobia dalam uji kecemasan *in vitro* jerami padi. ICSU didapat dari koleksi laboratorium Biokimia Nutrisi, Jurusan Nutrisi dan Makanan Temak Fakultas Peternakan UGM. Isolat campuran umur 3 hari dimasukkan dalam botol penyimpan tertutup dengan penambahan CaCO₃ sebanyak 0,0%, 0,5%, 1,0%, dan 1,5% dengan volume masing-masing 30 ml. Sebelum botol ditutup, isolat dialiri gas N₂ untuk memberikan suasana anaerobik dan selanjutnya disimpan pada suhu kamar. Pengambilan sampel dilakukan setiap 4 minggu sampai minggu ke-12, untuk diukur pH dan total koloni. Selanjutnya isolat dijadikan sebagai sumber mikrobia untuk mengukur kecemasan *in vitro* jerami padi. Jerami padi *in vitro* kemudian dianalisis kadar air dan abu sehingga diperoleh nilai kecemasan bahan kering (KCBK) dan nilai kecemasan bahan organik (KCBO). Data pH dan total koloni dianalisis dengan analisis variansi dengan rancangan split-split, sedang data KcBK dan KcBO dianalisis dengan analisis variansi dengan rancangan acak lengkap pola searah. Perbedaan variabel kemudian diuji dengan *Duncan's New Multiple Range Test*. Hasil analisis variansi menunjukkan bahwa lama penyimpanan dan kadar CaCO₃ memberikan pengaruh yang sangat nyata terhadap pH dan total koloni (P<0,01). Sedangkan analisis variansi terhadap KcBK dan KcBO memberikan pengaruh yang tidak berbeda nyata. Nilai pH tertinggi pada aras 1,0% dan berturut-turut 0,5%, 1,5% dan 0,0%. Nilai total koloni tertinggi pada aras 1,5% dan berturut-turut 1,0%, 0,5%, dan 0,0%. Nilai KcBK tertinggi pada aras 1,0% dan berturut-turut 0,0%, 1,5% dan 0,5%. Nilai KcBO tertinggi pada aras 1,0% dan berturut-turut 1,5%, 0,5% dan 0,0%.

Kata kunci : Jerami Padi, Donor Mikrobia, Isolat Campuran Selulolitik, CaCO₃, Kecemasan *in vitro*.

THE EFFECT OF CaCO_3 SUPPLEMENTATION TO CELLULOLITIC MIX-CULTURE QUALITY DURING STORAGE AND THE APPLICATION AS MICROBIA SOURCES IN THE IN VITRO ANALYSIS OF RICE STRAW

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ABSTRACT

The research was conducted to investigate the influence of CaCO_3 supplementation in superior cellulolytic mix culture (SCMC) on pH and total colony, and the second objective of the experiment was the application of SCMC as microbial sources for analysis of *in vitro* feed degradation. The isolates used in this research were superior cellulolytic mix culture obtained from the stock culture collection of Nutritional Biochemistry Laboratory, Faculty of Animal Science, Gadjah Mada University. The 3 days old of the SCMC was stored in the closed bottle, which had been added with CaCO_3 at 0,0%; 0,5%; 1,0%; and 1,5% level. The SCMC as starter then was storage at room temperature in anaerobic condition. Anaerobic condition was achieved by gassing with N_2 passed through a needle into the bottle. Each bottle contents 30 ml of starter. The sample of SCMC were taken to be measured the pH and total colony every 4 weeks until 12th week. The analysis of rice straw digestibility by *in vitro* need the water and ash determination for obtaining the dry matter and organic matter digestibility value. The data of pH and total colony were analyzed using analysis of variance with a split-plot design. The data of dry matter and organic matter digestibility value analyzed using Completely Randomized Design one way classification. The different variable observed then were analyzed by Duncan's New Multiple Range Test. The result of the research showed that pH and total colony starter were influenced ($P < 0,01$) by the CaCO_3 addition and storage periods. The kind of starter did not influence to dry matter and organic matter digestibility value. The highest pH was accurate at 1,0% CaCO_3 level, followed by 0,5%; 1,5% and 0,0% respectively. The highest total colony was found at 1,5 % CaCO_3 level, followed by 1,0 %; 0,5% and 0,0% respectively. The highest value of dry matter digestibility was found at 1,0% CaCO_3 level, followed by 0,0% ; 1,5% and 0,5% respectively. The highest value of organic matter digestibility was found at 1,0% CaCO_3 level, followed by 1,5 %; 0,5% and 0,0% respectively.

Key words : Rice straw, Microbia sources, Cellulolytic mix-culture, CaCO_3 , *in vitro* analysis