

**EKSTRAKSI ENZIM SELULASE DARI KETAM (*Eriocheir
sinensis*) DAN APLIKASINYA TERHADAP KECERNAAN
SILASE RUMPUT RAJA SECARA IN VITRO**

Yessi Fithria Hidayati
96/107524/PT/03277

2001

INTISARI

Penelitian ini bertujuan mengekstraksi enzim selulase dari ketam dan aplikasinya pada pembuatan silase rumput Raja. Larutan protein diendapkan menggunakan ammonium sulfat sebanyak 0,60,70,80% dan hasil endapan kemudian dikeringkan pada suhu rendah (*freeze-drying*). Aktivitas selulolitik diukur melalui aktivitas enzim CMC-ase sebelum dan setelah *freeze-drying*. Aktivitas enzim tertinggi diperoleh setelah *freeze-drying* dengan penambahan ammonium sulfat 60% yaitu sebesar 25,15 U/g. Berdasarkan aktivitas enzim tertinggi, bahan materi enzim yang diperoleh digunakan sebagai bahan tambahan pada pembuatan silase rumput Raja. Kadar penambahan larutan protein enzim adalah 0,1,2,3% dan proses silase dilakukan selama 21 hari. Variabel yang diamati adalah aktivitas enzim CMC-ase pencernaan bahan kering (BK), bahan organik (BO), serat kasar (SK) secara *in vitro* dan tingkat keasaman. Data yang diperoleh dianalisis dengan Analisis Variansi Pola Searah, dan perbedaan variabel karena perlakuan, diuji dengan Duncan's New Multiple Range Test. Hasil penelitian menunjukkan penambahan protein enzim hasil ekstraksi dari ketam berpengaruh nyata pada nilai cerna BK dan SK silase rumput Raja ($P < 0,05$), tapi tidak berpengaruh nyata pada pencernaan BO ($P > 0,05$). Nilai rata-rata pencernaan silase rumput Raja adalah 33,64%, 52,62%, 53,86%, 69,77% untuk BK dan 26,97%, 30,27%, 30,96%, 41,27% untuk BO serta 15,23%, 20,14%, 25,84%, 30,75% untuk SK. Nilai rata-rata tingkat keasaman adalah 1,49%, 1,62%, 1,76%, 1,98%. Dapat disimpulkan bahwa ekstrak ketam mengandung enzim selulase dan pada level penambahan 3% sebagai bahan tambahan pada silase rumput Raja dapat meningkatkan pencernaan BK dan SK.

(Kata kunci : Selulase, Ketam, Silase rumput Raja)

**EXTRACTION OF CELLULASES FROM CRABS (*Eriocheir
sinensis*) AND ITS APPLICATION TO KING GRASS
SILAGE DIGESTIBILITY BY *IN VITRO***

Yessi Fithria Hidayati
96/107524/PT/03277

2001

ABSTRACT

The objective of this experiment was to extract cellulases from Crabs and to applicate as additive on King grass silage. This study was begun by extraction of cellulases from Crabs, then the enzyme in the sample were precipited by different ammonium sulfate addition 0,60,70,80% and were dried by freezed drying. The highest cellulases activity has been achieved after freezed drying by addition 60% of ammonium sulfate was 25,78 U/g. From this data, the enzymes sources was used as additive to King grass silage incubated for 21 days by different level of enzymes 0,1,2,3%. The variables evaluated were cellulase activity, in vitro digestibility of dry matter (DM), organic matter (OM), crude fiber (CF) acidity level. The result were analyzed by Variance Analysis of One Way Classification of Completely Randomized Design. The difference variable due to treatments was evaluated by Duncan's New Multiple Range Test. The result of this experiment showed the addition of cellulase from Crabs 0,1,2,3% affected significantly digestibility of DM and CF ($P < 0,05$), but not on digestibility of OM ($P > 0,05$). The average value of DM, OM, CF digestibility of King grass silage by addition cellulase 0, 1,2,3% were 33,64%, 52,62%, 53,86%, 69,77% for DM and 26,97%, 30,27%, 30,96%, 41,27% for OM and 15,23%, 20,14%, 25,84%, 30,75% for CF respectively. The average value of acidity level were 1,49%, 1,62%, 1,76%, 1,98% for additive of cellulose 0,1,2 and 3% respectively. It can be concluded that addition 3% of the enzymes could improve the digestibility of DM and CF of King grass silage.

(Key Words: Cellulases, Crabs, King grass silage)