

Degradasi pakan dan karakteristik fermentasi residu serai wangi (*Cymbopogon nardus* L.) oleh mikroorganisme cairan rumen kerbau secara *in sacco* dan *in vitro* = Feed degradation and fermentation characteristics of citronella residue (*Cymbopogon nardus* L.) by buffalo rumen fluid microorganism using *in sacco* and *in vitro* methods

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Abstrak

Serai wangi *Cymbopogon nardus* L. merupakan tanaman penghasil minyak atsiri di Indonesia. Proses penyulingan akan menghasilkan residu yang berpotensi dijadikan sebagai pengganti hijauan untuk pakan ternak. Proses pencernaan pakan pada rumen kerbau atau cairan rumen perlu diteliti lebih lanjut. Sehingga perlu dilakukan penelitian mengenai degradasi pakan serai wangi segar dan residu serai wangi secara *in sacco*, serta perbedaan karakteristik fermentasi pakan dengan cairan rumen kerbau secara *in sacco* dan *in vitro*. Uji metode *in sacco* dengan sampel residu dan serai wangi segar, dilakukan di dalam fistula kerbau pada jam ke-0, 2, 4, 6, 12, 24 dan 48 jam, sedangkan *in vitro* dilakukan di dalam syringe dengan 5 perlakuan, yaitu A 0,4 g residu serai wangi, B 0,4 g residu serai wangi 0,01 g konsentrat, C 0,4 g residu serai wangi 0,02 g konsentrat, D 0,01 g konsentrat dan E 0,02 g konsentrat.

Hasil penelitian *in sacco* menunjukkan bahwa residu dan serai wangi segar memiliki perbedaan bahan kering 95,56 dan 94,52, bahan organik 89,57 dan 88,1, serat kasar 35,03 dan 36,00, lemak kasar 2,79 dan 1,96, protein kasar 5,82 dan 7,15, neutral detergent fiber NDF 73,67 dan 70,17, tanin 1,18 dan 1,21mg/g, sedangkan DBK, DBO dan DNDF mengalami kenaikan tingkat degradasi sampai dengan pengamatan 48 jam. Hasil uji *in vitro* menunjukkan, bahwa produksi metana tertinggi adalah perlakuan D, sebesar 98,2, kemudian E 92,06, C 17,71, A 15,33 and B 13,54. Berdasarkan kedua penelitian tersebut, diketahui bahwa kemungkinan residu serai wangi dapat digunakan untuk pakan ternak ruminansia dan metana dapat direduksi oleh residu serai wangi.

.....Citronella *Cymbopogon nardus* L. is an essential oil producing plant in Indonesia. The refining process will produce a residue that has a potential forage for animal feed. However, the process of digestibility on buffalo rumen or fluid rumen should be studied further. Therefore, research should be done to study citronella degradation and fresh citronella residue using *in sacco*, As well as the differences concentration of methane affected by the different forage concentration given by *in vitro*. Residue sample and citronella analysis was done using *in sacco* method, inside buffalo fistula on 0,2,4,6,12,24, and 48 hours observations. Whereas *in vitro* method was carried out in syringe with 5 treatments, ie a 0.4 g the residue of citronella, B 0.4 g the residue of citronella 0.01 g of concentrate, C 0.4 g the residue of citronella 0.02 g of concentrate, D 0,01 g of concentrate and E 0.02 g concentrate.

The study using *in sacco* method showed that residues and fresh citronella has dried material difference 95.56 and 94.52, organic material 89.57 and 88.1, crude fiber 35.03 and 36.00, crude fat 2.79 and 1.96, crude protein 5.82 and 7.15, neutral detergent fiber NDF 73.67 and 70.17, tannins 1.18 And 1.21mg g, while DBK, DBO and DNDF had increased rate of degradation on 48 hour observation. The results of *in vitro* study showed that the highest methane production is treatment D, it was 98.2, followed by E 92.06, C 17.71, A 15.33, B 13.54. Based on these two studies, we can see that residue citronella can be potentially used as

animal feed and methane can be reduced by residues of citronella.