

ABSTRACT

THE EFFECT OF THE LONG FERMENTATION OF PINEAPPLE LEAVES USING *Aspergillus niger* WITH DIFFERENT LEVELS TO VFA AND NH₃ CONCENTRATION *IN VITRO*

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This study aims to determine the best treatment between the length of fermentation and the level of administration of *Aspergillus niger* on pineapple leaves to the concentration of VFA and NH₃ *in vitro*. This research was conducted in January-March 2022 at the Dairy Animal Nutrition Science Laboratory, Faculty of Animal Husbandry, Bogor Agricultural University. This study used a factorial Completely Randomized Design consisting of 3 x 3 treatments and 3 replications so that there were 27 experimental units. The treatments used were D0L0 (0% *Aspergillus niger* level with 0 days of fermentation), D0L1 (0% *Aspergillus niger* level with 6 days of fermentation), D0L2 (0% *Aspergillus niger* level with 12 days of fermentation), D1L0 (2% *Aspergillus niger* level with 0 days of fermentation), D1L1 (2% *Aspergillus niger* level with 6 days of fermentation), D1L2 (2% *Aspergillus niger* level with 12 days of fermentation), D2L0 (4% *Aspergillus niger* level with 0 days of fermentation), D2L1 (4% *Aspergillus niger* level with 6 days of fermentation) and D2L2 (4% *Aspergillus niger* level with 12 days of fermentation). The data obtained were analyzed for variance at the 5% and or 1% significance level and continued using the BNT test. The results showed that there was a significantly different interaction between the duration of fermentation and the level of *Aspergillus niger* administration on the concentration of VFA and NH₃. The best combination of treatments was 4% *Aspergillus niger* level with 0 days of fermentation for VFA concentration of 121.73 mM and the treatment of *Aspergillus niger* 0%, 2%, 4% with a fermentation time of 0 days NH₃ concentration of 10.50; 10.65; and 10.80 mM.

Keywords: *Aspergillus niger*, NH₃, pineapple leaf, and VFA.

ABSTRAK

PENGARUH LAMA FERMENTASI DAUN NANAS MENGGUNAKAN *Aspergillus niger* DENGAN LEVEL BERBEDA TERHADAP KONSENTRASI VFA DAN NH₃ SECARA *IN VITRO*

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Penelitian ini bertujuan untuk mengetahui perlakuan terbaik antara lama fermentasi dan level pemberian *Aspergillus niger* pada daun nanas terhadap konsentrasi VFA dan NH₃ secara *in vitro*. Penelitian ini dilaksanakan pada Januari-Maret 2022 bertempat di Laboratorium Ilmu Nutrisi Ternak Perah, Fakultas Peternakan, Institut Pertanian Bogor. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) faktorial yang terdiri dari 3x3 perlakuan dan 3 ulangan sehingga terdapat 27 unit satuan percobaan. Perlakuan yang digunakan yaitu D0L0 (level *Aspergillus niger* 0% dengan lama fermentasi 0 hari), D0L1 (level *Aspergillus niger* 0% dengan lama fermentasi 6 hari), D0L2 (level *Aspergillus niger* 0% dengan lama fermentasi 12 hari), D1L0 (level *Aspergillus niger* 2% dengan lama fermentasi 0 hari), D1L1 (level *Aspergillus niger* 2% dengan lama fermentasi 6 hari), D1L2 (level *Aspergillus niger* 2% dengan lama fermentasi 12 hari), D2L0 (level *Aspergillus niger* 4% dengan lama fermentasi 0 hari), D2L1 (level *Aspergillus niger* 4% dengan lama fermentasi 6 hari) dan D2L2 (level *Aspergillus niger* 4% dengan lama fermentasi 12 hari). Data yang diperoleh dianalisis ragam pada taraf nyata 5% dan atau 1% dan dilanjutkan menggunakan uji BNT (Beda Nyata Terkecil). Hasil penelitian terdapat interaksi yang berbeda nyata antara lama fermentasi dan level pemberian *Aspergillus niger* terhadap konsentrasi VFA dan NH₃. Hasil penelitian dapat disimpulkan bahwa kombinasi pengaruh terbaik level *Aspergillus niger* 4% dengan lama fermentasi 0 hari terhadap konsentrasi VFA sebesar 121,73 mM dan kombinasi level *Aspergillus niger* 0%, 2%, 4% dengan lama fermentasi 0 hari pada konsentrasi NH₃ sebesar 10,55; 10,65; dan 10,80 mM.

Kata kunci: *Aspergillus niger*, NH₃, daun nanas, dan VFA.