

## PENGARUH NAUNGAN DAN PENAMBAHAN PUPUK UREA TERHADAP PERTUMBUHAN, PRODUKSI, DAN KECERNAAN *IN VITRO* JONTANG KUDA (*Synedrella nodiflora*)

### INTISARI

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Penelitian ini bertujuan untuk mengetahui pengaruh naungan dan penambahan pupuk urea terhadap pertumbuhan, produksi, pencernaan, dan karakteristik fermentasi rumen secara *in vitro* jontang kuda (*Synedrella nodiflora*) sebagai pakan ternak. Penelitian dilaksanakan pada September 2020-Januari 2021 di Laboratorium Hijauan Makanan Ternak dan Pastura, Fakultas Peternakan Universitas Gadjah Mada, Yogyakarta. Penelitian ini menggunakan rancangan acak lengkap pola faktorial 2 x 3. Faktor pertama adalah jenis naungan yang terdiri dari naungan dan tanpa naungan. Perlakuan menggunakan naungan dengan intensitas cahaya 478x10 lux dan tanpa naungan dengan intensitas cahaya 477x100 lux. Faktor yang kedua level pemberian pupuk urea yang terdiri dari 0kg/ha, 100kg/ha, dan 200kg/ha. Variabel yang diamati adalah tinggi tanaman, jumlah cabang, jumlah daun, produksi segar, produksi bahan kering, kadar nutrisi, pencernaan bahan kering (KCBK), pencernaan bahan organik (KCBO) dan pencernaan protein kasar (KCPK) serta karakteristik fermentasi rumen yaitu konsentrasi *Volatile Fatty Acid* (VFA), amoniak (NH<sub>3</sub>), dan sintesis protein mikrobia secara *in vitro*. Data yang diperoleh akan dianalisis dengan analisis keragaman (*analysis of variance*) dan jika terdapat perbedaan nyata, dilakukan uji lanjut dengan uji *Duncan's New Multiple Range Test* (DMRT). Hasil penelitian menunjukkan bahwa perbedaan tipe naungan memberikan pengaruh nyata ( $P < 0,05$ ) terhadap pertumbuhan vegetatif (tinggi tanaman, jumlah daun, dan jumlah cabang), produksi segar, dan komposisi kimia (bahan kering, bahan organik, dan protein kasar). Hasil penelitian menunjukkan bahwa perbedaan level pupuk memberikan pengaruh nyata ( $P < 0,05$ ) terhadap pertumbuhan vegetatif (tinggi tanaman, jumlah daun, dan jumlah cabang), kandungan protein kasar, pencernaan protein kasar, dan produksi NH<sub>3</sub>. Kesimpulan pada penelitian ini adalah penanaman tanpa naungan meningkatkan komposisi kimia (bahan kering, bahan organik, dan protein kasar), sedangkan pemberian pupuk urea 100kg/Ha dan 200kg/Ha meningkatkan pertumbuhan vegetatif, kandungan protein kasar, pencernaan protein kasar dan produksi NH<sub>3</sub>.

Kata kunci: Biomasa, pencernaan *in vitro*, naungan, pemupukan, *Synedrella nodiflora*

## EFFECT OF SHADE AND ADDITION OF UREA FERTILIZER ON GROWTH, PRODUCTION, AND IN VITRO DIGESTIBILITY OF JONTANG KUDA (*Synedrella nodiflora*)

### ABSTRACT

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This study aimed to determine the effect of shade and addition of urea fertilizer on growth, production, digestibility, and characteristics of in vitro rumen fermentation of jontang kuda (*Synedrella nodiflora*) as animal feed. The research was carried out in September 2020-January 2021 at the Forage and Pasture Science Laboratory, Faculty of Animal Science, Gadjah Mada University, Yogyakarta. This study used a completely randomized design (CRD) with a 2 x 3 factorial pattern. The first factor was the type of shade which consisted of shade and no shade. The shading treatment was used shade with light intensity 478x10 lux and open space plantation with light intensity 477x100 lux. The second factor was the level of urea fertilizer consisted of 0kg/ha, 100kg/ha, and 200kg/ha. The variables observed were plant height, number of branches, number of leaves, fresh production, dry matter production, nutrient content, dry matter digestibility (DMD), organic matter digestibility (OMD) and crude protein digestibility (CPD) as well as rumen fermentation characteristics, namely concentration Volatile Fatty Acid (VFA), ammonia (NH<sub>3</sub>), and in vitro microbial protein synthesis. The data obtained were analyzed by analysis of variance and if there were significant differences, further testing were carried out using Duncan's New Multiple Range Test (DMRT). The results showed that different types of shade had a significant effect ( $P < 0.05$ ) on vegetative growth (plant height, number of leaves, and number of branches), fresh production, and chemical composition (dry matter, organic matter, and crude protein). The results showed that differences in fertilizer levels had a significant effect ( $P < 0.05$ ) on vegetative growth (plant height, number of leaves, and number of branches), crude protein content, crude protein digestibility, and NH<sub>3</sub> production. The conclusion of this study was that planting without shade increased the chemical composition (dry matter, organic matter, and crude protein), while the application of 100kg/Ha and 200kg/Ha urea fertilizer increased vegetative growth, crude protein content, crude protein digestibility and NH<sub>3</sub> production.

Keywords: Biomass, digestibility in vitro, shade, fertilizer, *Synedrella nodiflora*