

**KUALITAS HAY RUMPUT GAMA UMAMI (*Pennisetum Purpureum* cv. Gama Umami) DENGAN LAMA PENGERINGAN DAN TEMPERATUR YANG BERBEDA MENGGUNAKAN ALAT ROTARY DRYER**

**INTISARI**

Hasrifa  
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Penelitian ini bertujuan untuk mengetahui pengaruh lama pengeringan dan variasi temperatur pada proses pembuatan hay rumput gama umami (*Pennisetum purpureum* cv. gama umami) menggunakan *rotary dryer* terhadap kualitas fisik, kimia dan pencernaan rumen secara *in vitro*. Rumput gama umami (GU) di panen pada umur potong 60 hari kemudian dicacah dengan ukuran 3 – 5 cm. Rumput GU yang telah dicacah dikeringkan dalam *rotary dryer* pada suhu 90°C dan 100°C dengan lama pengeringan berbeda terdiri dari 2, 4, dan 6 jam. Rumput GU yang telah dikeringkan kemudian ditimbang lalu dikemas dalam karung kecil dan disimpan selama 1 dan 2 bulan dalam ruangan. Sebelum dilakukan penyimpanan rumput GU yang dikeringkan dalam *rotary dryer* terlebih dahulu dilakukan analisis kandungan nutrien. Selama penyimpanan 1 dan 2 bulan dilakukan uji fisik dan analisis kandungan nutrien. Setiap perlakuan menggunakan 3 replikasi dan setiap replikasi memiliki berat segar 4 kg sebelum dikeringkan dengan *rotary dryer*. Rancangan penelitian menggunakan faktorial 2 (90°C vs. 100°C) × 3 (2 jam vs. 4 jam vs. 6 jam). Rumput GU memiliki kandungan awal bahan kering (BK) 21,1%, protein kasar (PK) 12,2%, lemak kasar (LK) 2,3%, serat kasar (SK) 19,2%, dan BETN 45,7%. Pengeringan menggunakan *rotary dryer* pada 90°C dan 100°C selama 2–6 jam meningkatkan BK secara signifikan, dengan nilai tertinggi 63,97% (100°C, 6 jam) dan terendah 33,93% (90°C, 2 jam). BO stabil (81,6–82,7%). PK turun menjadi 12,19–(10,47%), LK menjadi 1,47–(2,27%), SK berada pada 18,75–(19,20%), dan bahan ekstrak tanpa nitrogen (BETN) stabil pada 52,8–(53,9%). Interaksi signifikan hanya terjadi pada BK dan LK, di mana kombinasi suhu tinggi dan durasi lama pengeringan mempercepat oksidasi dan degradasi lemak. Pada kadar BO, PK, SK, dan BETN, suhu dan lama pengeringan bekerja secara independen. Selama penyimpanan 30–60 hari, BK meningkat (hingga 69,04%) sedangkan PK, LK dan BETN menurun, dan kadar SK stabil. Warna hay cenderung berubah kecoklatan tetapi masih dalam kategori baik. Nilai pencernaan menunjukkan KcBK 53,36–54,64% dan KcBO 47,09–49,09%. Perlakuan terbaik diperoleh pada suhu 100°C selama 2 jam, karena mampu mempertahankan kandungan PK dan LK lebih tinggi, warna lebih baik, dan kualitas hay lebih stabil dibanding perlakuan lainnya serta efisien waktu dibandingkan penggunaan suhu 90°C.

Kata kunci: Rumput gama umami, *rotary dryer*, hay, suhu, waktu

**QUALITY OF GAMA UMAMI GRASS HAY (*Pennisetum Purpureum* cv. Gama Umami) WITH DIFFERENT DRYING TIMES AND TEMPERATURES USING A ROTARY DRYER**

**ABSTRACT**

Hasrifa  
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This study aimed to evaluate the effect of different drying times and temperatures during the *hay*-making process of Gama Umami grass (*Pennisetum purpureum* cv. Gama Umami) using a *rotary dryer* on the physical quality, chemical composition, and *in vitro* rumen digestibility. Gama Umami grass (GU) was harvested at 60 days of regrowth and chopped into 3–5 cm lengths. The chopped grass was dried in a *rotary dryer* at temperatures of 90°C and 100°C for 2, 4, and 6 hours. After drying, the material was weighed, packed into small sacks, and stored for 1 and 2 months at room conditions. Prior to storage, dried samples were analyzed for nutrient composition. During the 1- and 2-month storage period, physical quality and nutrient composition were also evaluated. Each treatment consisted of three replications, with each replication containing 4 kg of fresh material before drying. The experiment employed a 2 × 3 factorial design (90°C vs. 100°C; 2 h vs. 4 h vs. 6 h). Gama Umami grass had an initial composition of 21.1% dry matter (DM), 12.2% crude protein (CP), 2.3% crude fat (EE), 19.2% crude fiber (CF), and 45.7% nitrogen-free extract (NFE). Drying using a rotary dryer at 90°C and 100°C for 2–6 hours significantly increased DM, with the highest value (63.97%) obtained at 100°C for 6 hours and the lowest (33.93%) at 90°C for 2 hours. Organic matter (OM) remained relatively stable (81.6–82.7%). Crude protein decreased to 10.47–12.19%, crude fat to 1.47–2.27%, crude fiber ranged from 18.75–19.20%, and nitrogen-free extract remained stable (52.8–53.9%). Significant interactions were observed only for DM and crude fat, where the combination of higher temperature and longer drying duration accelerated lipid oxidation and thermal degradation. For OM, CP, CF, and NFE, temperature and drying duration acted independently. During 30–60 days of storage, DM continued to increase (up to 69.04%), while CP, EE, and NFE decreased, and CF remained stable. Hay color tended to become brownish but was still classified as acceptable. Digestibility values ranged from 53.36–54.64% for dry matter digestibility (DMD) and 47.09–49.09% for organic matter digestibility (OMD). The optimal treatment was drying at 100°C for 2 hours, as it maintained higher CP and EE contents, better color, and more stable hay quality compared with other treatments, while also being more time-efficient than drying at 90°C.

Keywords: Gama Umami grass, *rotary dryer*, *hay*, temperature, time