

PENGARUH UMUR DAN TINGGI PEMOTONGAN PERTAMA TERHADAP MORFOLOGI, KANDUNGAN SERAT DAN KECERNAAN *IN-VITRO* PADA PERTUMBUHAN KEMBALI TANAMAN OROK-OROK (*Crotalaria juncea* L.)

INTISARI

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Penelitian bertujuan untuk mengetahui morfologi, kandungan serat dan pencernaan *in-vitro* pada pertumbuhan kembali (*regrowth*) ke-1 tanaman orok-orok (*Crotalaria juncea* L.) yang dipotong pada umur dan tinggi pemotongan pertama yang berbeda. Penelitian menggunakan rancangan acak lengkap faktorial 3 x 3 yang terdiri dari umur pemotongan (6, 7, 8 minggu) dan tinggi pemotongan pertama (15, 30, 45 cm), masing-masing perlakuan diulang sebanyak 3 kali sehingga diperoleh 27 plot. Materi dan metode penelitian berupa seperangkat alat dan bahan untuk analisis morfologi, kandungan serat dan pencernaan *in-vitro* serta biji orok-orok. Tahapan penelitian dimulai dari persiapan dan penanaman, pemeliharaan, pemotongan pendahuluan, pengukuran morfologi tanaman, pemotongan dan pengukuran hasil, preparasi sampel dan analisis kandungan serat and pencernaan *in-vitro*. Variabel yang diamati meliputi morfologi tanaman (panjang daun, lebar daun dan diameter batang), kandungan serat *neutral detergent fiber* (NDF) dan *acid detergent fiber* (ADF) dan pencernaan *in-vitro* bahan kering (BK) dan bahan organik (BO). Data penelitian dianalisis menggunakan *analysis of variance* (ANOVA) dilanjutkan dengan uji *duncan's multiple range test* (DMRT). Hasil penelitian menunjukkan bahwa umur pemotongan 6 minggu memberikan hasil terbaik ($P < 0,05$) pada panjang daun (12,95 cm), lebar daun (3,15 cm), diameter batang (0,93 cm), NDF batang (63,11%), ADF batang dan daun (53,41% dan 23,85%), KcBK batang dan daun (49,26% dan 82,42%), serta KcBO batang dan daun (46,44% dan 76,90%). Tinggi pemotongan 15 cm memberikan hasil terbaik ($P < 0,05$) pada NDF batang (61,87%) dan ADF batang (53,53%). Tidak terdapat interaksi antara umur dan tinggi pemotongan terhadap semua parameter yang diamati. Oleh karena itu, kombinasi umur pemotongan 6 minggu dan tinggi pemotongan 15 cm direkomendasikan untuk memperoleh hijauan dengan keseimbangan antara morfologi, kandungan serat dan pencernaan *in-vitro* pada pertumbuhan kembali tanaman orok-orok (*Crotalaria juncea* L.).

Kata kunci: *Crotalaria juncea* L., umur pemotongan, tinggi pemotongan, pertumbuhan kembali, pencernaan *in-vitro*

EFFECTS OF INITIAL CUTTING AGE AND HEIGHT ON MORPHOLOGY, FIBER CONTENT, AND *IN-VITRO* DIGESTIBILITY OF REGROWTH IN SUNN HEMP (*Crotalaria juncea* L.)

ABSTRACT

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This study aimed to evaluate the morphology, fiber content, and *in-vitro* digestibility of the first regrowth of sunn hemp (*Crotalaria juncea* L.) subjected to different initial cutting ages and heights. A 3 × 3 factorial experiment was arranged in a completely randomized design, consisting of cutting age (6, 7, and 8 weeks) and initial cutting height (15, 30, and 45 cm). Each treatment was replicated three times, resulting in 27 plots. The research materials and methods included a set of instruments and reagents for morphological, fiber content, and *in-vitro* digestibility analyses, as well as sunn hemp seeds. The experimental procedure consisted of preparation and planting, maintenance, preliminary cutting, measurement of plant morphology, harvesting and yield measurement, sample preparation, and analysis of fiber content and *in-vitro* digestibility. The observed variables included plant morphology (leaf length, leaf width, and stem diameter), fiber fractions neutral detergent fiber (NDF) and acid detergent fiber (ADF), and *in-vitro* digestibility dry matter (DM) and organic matter (OM). Data were analyzed using analysis of variance (ANOVA) followed by Duncan's multiple range test (DMRT). The results showed that a cutting age of 6 weeks produced the most favorable outcomes ($P < 0.05$) in leaf length (12.95 cm), leaf width (3.15 cm), stem diameter (0.93 cm), stem NDF (63.11%), stem and leaf ADF (53.41% and 23.85%, respectively), stem and leaf *in-vitro* DM digestibility (49.26% and 82.42%, respectively), as well as stem and leaf *in-vitro* OM digestibility (46.44% and 76.90%, respectively). A cutting height of 15 cm resulted in the best values ($P < 0.05$) for stem NDF (61.87%) and stem ADF (53.53%). No interaction was observed between cutting age and cutting height for all measured parameters. Therefore, a 6-week cutting age and a 15 cm cutting height are recommended to obtain forage with an optimal balance of morphology, fiber content, and *in-vitro* digestibility in the regrowth of sunn hemp (*Crotalaria juncea* L.).

Keywords: *Crotalaria juncea* L., cutting age, cutting height, regrowth, *in-vitro* digestibility