

STUDI POTENSI DAN FERMENTASI GULMA PERKEBUNAN KARET PT. PERKEBUNAN NUSANTARA IX SEBAGAI PAKAN TERNAK

INTISARI

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Penelitian ini bertujuan untuk mengetahui dominasi, produksi, kualitas nutrisi gulma yang tumbuh di bawah pohon karet pada tanaman belum menghasilkan (TBM), serta mengetahui potensi gulma sebagai pakan hijauan makanan ternak dan peningkatan kualitas dan fermentasi nutrisi gulma melalui fermentasi. Penelitian dilaksanakan selama 8 bulan pada bulan Januari – Agustus 2017 di TBM, perkebunan karet PT. Perkebunan Nusantara IX, Kebun Getas, Semarang, Jawa Tengah, Laboratorium Hijauan Makanan Ternak dan Pastura, dan Laboratorium Biokimia Nutrisi, Fakultas Peternakan, Universitas Gadjah Mada. Hasil penelitian komposisi botani gulma, intensitas cahaya, kecepatan angin, suhu lingkungan, produksi hijauan dan kapasitas tampung ternak menurun seiring bertambahnya umur tanaman karet. Komposisi botani gulma dibagi berdasarkan morfologi tanaman adalah sebagai berikut : rumput, legum, forb, browse. Komposisi gulma perkebunan karet pada TBM 1 - 2 terdapat 32 spesies meliputi 5 rumput, 4 legum, 21 forb dan 2 browse, TBM 3 - 4 terdapat 15 spesies meliputi 8 rumput, 2 legum, 5 forb dan 0 browse, sedangkan TBM 5 - 6 terdapat 6 spesies meliputi 4 rumput, 1 legum, 1 forb dan 0 browse. Gulma yang mendominasi pada TBM 1 - 2, 3 - 4, 5 - 6 masing-masing yaitu *Calopogonium mucunoides*, *Cyrtococcum acrescens* dan *Cyrtococcum oxyphyllum*. Komposisi kimia gulma di perkebunan karet mempunyai nilai tertinggi ada pada TBM 1 - 2 apabila dilihat atas dasar kadar protein kasar, serat kasar, lemak kasar, dan *total digestible nutrient*. Produksi hijauan dan kapasitas tampung ternak berdasarkan bahan kering hijauan pada TBM yaitu 1,99 - 7,78 ton/ha/th dan 0,53 - 2,07 unit ternak/tahun setara 4,25 - 16,58 *dry sheep equivalent*/tahun. Hasil penelitian perlakuan penambahan aditif molases, *Lactobacillus plantarum*, *Trichoderma viride* mempercepat penurunan pH silase dan menurunkan serat kasar, serta meningkatkan bahan kering, bahan organik, asam asetat, asam propionat, asam butirat, total VFA, pencernaan bahan kering (KcBK), pencernaan bahan organik (KcBO), dan pencernaan serat kasar (KcSK). Perbedaan gulma perkebunan karet tidak berpengaruh pada pH silase, serat kasar, pH pencernaan *in vitro*, dan rasio asam asetat : asam propionat. Berdasarkan penelitian ini dapat disimpulkan antara lain yaitu gulma yang terdapat pada perkebunan karet dapat digunakan sebagai hijauan makanan ternak. Berdasarkan kajian fermentasi gulma melalui fermentasi dapat disimpulkan bahwa penambahan aditif molases, *Lactobacillus plantarum*, *Trichoderma viride* mampu meningkatkan kualitas dan pencernaan *in vitro* silase gulma perkebunan karet pada umur yang berbeda. Gulma perkebunan karet lahan TBM 1 – 2 yang paling potensial untuk pakan dari segi produksi, komposisi kimia, daya tampung ternak, fermentasi dan pencernaan *in vitro*.

Kata kunci: gulma, fermentasi, perkebunan karet, kapasitas tampung, pencernaan *in vitro*

POTENTIAL STUDY AND CONSERVATION OF WEED RUBBER PLANTATION AT PT. PERKEBUNAN NUSANTARA IX FOR ANIMAL FEED

ABSTRACT

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This study aimed to determine the dominance, production, quality of nutrients from weeds under rubber trees in immature plants (IP), as well as to know the potential of weeds as forage and increased nutrient quality of weeds by fermentation and *in vitro* digestibility. The study was conducted 8 months in January - August 2017 at IP rubber plantation PT. Perkebunan Nusantara IX, Getas Farm, Semarang, Central Java, Forage and Pasture Science Laboratory, Nutritional Biochemistry Laboratory, Faculty of Animal Science, Universitas Gadjah Mada. The results of botanical composition of weeds, light intensity, wind speed, environmental temperature, forage production and carrying capacity decreased with increasing of ages of rubber plant. The composition of weed botany are divided based on plant morphology into grass, legume, forbs, browse. Composition of rubber plantation weeds on IP 1 - 2 there are 32 species (5 grasses, 4 legumes, 21 forb and 2 browse), IP 3-4 there are 15 species (8 grasses, 2 legumes, 5 forb and 0 browse), while IP 5 - 6 there are 6 species (4 grasses, 1 legume, 1 forb and 0 browse). The dominant weeds at IP 1 - 2, 3 - 4, 5 - 6 are *Calopogonium mucunoides*, *Cyrtococcum acrescens* and *Cyrtococcum oxyphyllum*, respectively. The highest chemical composition of rubber plantation weeds is in IP 1 - 2 based on crude protein, crude fiber, crude fat, and total digestible nutrient. The production of forage and carrying capacity based on dry matter forage material on IP is 1.99 - 7.78 tons/ha/year and 0.53 - 2.07 animal unit/year equivalent to 4.25 - 16.58 dry sheep equivalent/year. The results of the molasses additive study, *Lactobacillus plantarum*, *Trichoderma viride* accelerate the pH silage decrease and decrease the crude fiber, also increase the dry matter, organic matter, acetic acid, propionic acid, butyric acid, total VFA, *in vitro* digestibility of dry matter, *in vitro* digestibility of organic matter, and *in vitro* digestibility of crude fiber. The difference at rubber plantation weeds is unfavorable at pH silage, crude fiber, *in vitro* pH digestibility, and the ratio of acetic acid: propionic acid. Based on the research have been concluded, among others, that rubber plantation weeds can be used as forages forage. The addition of molasses additive, *Lactobacillus plantarum*, *Trichoderma viride* was able to improve the quality and digestibility of *in vitro* silage of weeds rubber plantation at different ages. Weeds rubber plantation are potential IP 1 - 2 for feed in terms of production, chemical composition, carrying capacity, fermentation and *in vitro* digestibility.

Keywords: carrying capacity, fermentation, *in vitro* digestibility, rubber plantation, weed