



## I-INTERNATIONAL MEETING OF ANIMAL SCIENCE IN SEMI-ARID REGIONS

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### Pastures and Forage

#### **Effect of cutting height at harvest on the levels of secondary metabolites of *gliricidia* grown in a semi-arid environment**

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The *Gliricidia sepium* (Jacq.) Steud (gliricídia) is a versatile forage crop used for animal feed in semi-arid environments, either fresh, as hay, or as silage. However, there is a lack of references regarding management strategies and the response to secondary metabolite content. These metabolites, even in vestigial amounts, can have adverse effects on nutrient utilization but also offer benefits, such as a high potential for mitigating enteric methane production. This study aimed to analyze the responses in secondary metabolite content of gliricidia when subjected to different harvesting height strategies. The experiment was conducted at the biosaline agriculture experimental field, located at the Empresa Brasileira de Pesquisa Agropecuária - Embrapa Semiárido, in Petrolina, PE. A randomized block design with four replications was used. Four harvesting heights (1.20 m, 1.40 m, 1.60 m, and 1.80 m) were evaluated in gliricidia grown under dryland conditions for twelve months. The recorded precipitation was 485.3 mm, with the highest concentration of rainfall from November 2021 to April 2022. At the start of the experiment (April 2021), a uniform cut was made at a height of 50 cm. Fifteen Mg.ha<sup>-1</sup> of goat and sheep manure (50%) was applied, and collections began when the plant stand reached 70% of the experimentally predetermined heights. A sample of green material was collected from four central plants per block in the different treatments, and subsequently, the material was dried in ovens at 55°C for 72 hours at the animal nutrition laboratory at Embrapa Semiárido. The dried material was then ground in a Willey mill with a 1 mm mesh sieve. The following secondary metabolite contents were determined: total tannins, condensed tannins, and saponins. Data related to harvesting height strategies (HHS) were subjected to variance and regression analysis. A quadratic effect (P<0.05) was observed for all analyzed variables. Total tannins reached a minimum point of 13.84 g.kg<sup>-1</sup> at a height of 1.44 m in gliricidia, the highest level recorded in the HHS at 1.80 m (19.51 g.kg<sup>-1</sup>). Condensed tannins reached a minimum point of 5.73 g.kg<sup>-1</sup> at a height of 1.57 m, while the highest content was observed at the HHS of 1.20 m (7.74 g.kg<sup>-1</sup>). As for the values for saponins, they reached a maximum point of 4.03 g.kg<sup>-1</sup> at the HHS of 1.48 m. The analyzes indicate that the cutting height at harvest has a significant influence on the levels of secondary metabolites in the gliricidia plant, with distinct patterns observed for total tannin, condensed tannin and saponin levels, with values close to the recommended ranges for composing the diet of ruminant animals.

**Keywords:** Management strategy, *Gliricidia sepium* (Jacq.) Steud, tannin.

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