

EFFECT OF DOSES OF POULTRY COMPOST ON CHLOROPHYLL AND FLAVONOIDS OF *BRACHIARIA BRIZANTHA* BRS PIATÃ

EFEITO DE DOSES DE COMPOSTO DE CAMA AVIÁRIA SOBRE CLOROFILA E FLAVONOIDES EM *BRACHIARIA BRIZANTHA* BRS PIATÃ

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In 2012, Brazil produced 12.6 million metric tons of chicken meat, generating 10.3 tons of poultry litter. Compost made from such organic waste can be used as a low-cost bio fertilizer, especially as nitrogen and phosphorus source. The compost can increase pastures quality by giving photosynthetic improvement and altering amounts of chlorophyll and flavonoids. There is little information about the relationship between chlorophyll a or b and flavonoids in *Brachiaria brizantha* Piata. The flavonoid is a kind of polyphenol compound which protects the plant against UV-B radiation and pathogen attack, it acts as attractants for pollinators, as signal molecules for initiating plant-microbe symbiotic associations and antioxidant activity. The objective of the present study was verified the effects of poultry litter compost doses on the chlorophyll and flavonoid contents in Piata grass leaves. The experiment was performed at the Animal Nutrition and Pasture Center – Instituto de Zootecnia – Nova Odessa, SP, from May to July 2013, on a Haplorthox soil ($pH_{CaCl_2} = 4.9$), cultivated with Piata grass (*Brachiaria brizantha*, Stapf), without liming. The treatments consisted of five compost doses: 0; 20; 40; 60 and 120 Mg ha⁻¹, with the following chemical composition (%): 2.88 of N, 3.85 of P₂O₅, 2.50 of K₂O, 9.06 of Ca and 1.16 of Mg. The experimental design was on randomized blocks with five replications. Chlorophyll amounts and flavonoids were determined by sampling the third medium of the leaf blade from a third of the expanded leaf from the apical using the Dualex and the chlorophyll a and b which were determined by the Lichtenthaler & Wellburn (1983) method. Results showed that chlorophyll a was similar in all doses (average of 18.3 micrograms per cm²), therefore for chlorophyll b the amount was significantly increased from 7.3 to 22.4 micrograms per cm² ($P < 0.01$) when compared to no addition of poultry litter. The fast nitrogen liberation from poultry litter resulted on a better metabolism and better chlorophyll b synthesis, indicating more mass production. Flavonoid contents decreased on the leaves of *Brachiaria brizantha* Piata with the addition of poultry litter, from 1.39 to .81 micrograms per cm², with respectively zero 120 Mg ha⁻¹ of compost. Flavonoid content was negatively correlated to total chlorophyll, adjusted by the quadratic equation: Flavonoids = - 0.0353Chlorophyll + 2.29 ($R^2 = 0.87$). The use of increasing doses of poultry litter reduced the foliar flavonoids concentration.

Keywords: flavonoids, Piatagrass, poultry litter.

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