MINERAL CONCENTRATION OF THE STEMS OF SPONTANEOUS PLANTS, FORAGE LEGUME AND FORAGE GRASS

CONCENTRAÇÃO MINERAL DOS RAMOS/COLMOS DE PLANTAS ESPONTÂNEAS, LEGUMINOSA E GRAMÍNEA FORRAGEIRAS

ALBERTO NAGIB DE VASCONCELLOS MIGUEL[1]*, FLAVIA MARIA DE ANDRADE GIMENES[1], THIAGO HERLING DA CRUZ MADEIRA[1], LINDA MONICA PREMAZZI[1], SULEIZE ROCHA TERRA[1], ALESSANDRA APARECIDA GIACOMINI[1], SAMANTHA HELEN PAULINO[1]

[1]Instituto de Zootecnia (IZ / APTA / SAA), Nova Odessa, SP, Brazil
*e-mail: albertomiguel@shaw.ca

Spontaneous plants are present in pastures and as such must be evaluated under the concepts of sustainability. The objective of this paper is to evaluate the mineral composition of the stems of forage and spontaneous plants of pastures grown in a greenhouse at the Instituto de Zootecnia in Nova Odessa, São Paulo, Brazil. Five plant species were evaluated: signalgrass (*Urochloa decumbens* cv. Basilisk), macrotiloma (*Macrotyloma axillare* NO 279) and three spontaneous plants: hairy beggarticks (*Bidens pilosa*), arrowleaf sida (*Sida rhombifolia*) and slender amaranth (*Amaranthus viridis*), in two cuttings (C1 and C2) at two different moments, in a randomized blocks design with four repetitions, totalling 40 experimental units (boxes filled with 35 kg of soil each). The concentrations of nitrogen (N), phosphorus (P), and potassium (K) in the stems were evaluated using PROC GLM SAS® and the Student test ($P<0.05$). The concentration of N varied with the species ($P<0.0001$) and was higher for slender amaranth, followed by hairy beggarticks, arrowleaf sida, macrotiloma and signalgrass, the last of which differed significantly from the others. There was a reduction in average N concentration ($P<0.0001$) from cutting 1 to cutting 2, from 28.89 to 15.24%. For P concentration, the highest values were for the spontaneous plants (average of 1.49 ± 0.133%) and lowest for macrotiloma and signalgrass (average of 1.60 ± 0.133%), and the P concentration ($P<0.001$) was higher for C1 (1.61 ± 0.084%) in relation to C2 (0.82 ± 0.084%). For K concentration, only slender amaranth (35.91 ± 3.057%) differed from the others ($P<0.0001$), with average of 10.33 ± 3.057%, and the K concentration fell from C1 (22.07 ± 1.933%) to C2 (8.82 ± 1.933%). Spontaneous plants presented higher concentration for the minerals evaluated in the stems compared to the grass and legume, which suggests that each plant has the potential to increase the mineral concentration in the soil differently, so those plants can collaborate for the sustainability of pasture systems, as their stems are trampled by cattle or their contents are recycled to the soil through dung and urine.

Keywords: forage, sustainability, weeds.

Acknowledgments: To Fundação de Amparo a Pesquisa do Estado de São Paulo (FAPESP) for project funding (Process 2016/22463-0) and to CNPq for the scholarship funding.