



Relationship between the leaf mineral composition of lemongrass fertilized with different nitrogen sources and essential oil production

Jeidi Y. G. Cobos¹, Cícero Deschamps¹, Cristhian H. Gamboa², Volnei Pauletti²

¹ Department of Plant Science, Federal University of Paraná, Rua dos Funcionários, 1540 Juvevê, Curitiba 81531-990, Paraná, Brazil

² Department of Soils and Agricultural Engineering, Federal University of Paraná, Rua dos Funcionários, 1540 Juvevê, Curitiba 80035-050, Paraná, Brazil
jygalc4@gmail.com

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Lemongrass is an aromatic and medicinal plant used as raw material in the preparation of tea and essential oil extraction rich in citral. The plant grows forming a clump with abundant leaf system that assumes high demand for nutrients, especially nitrogen because it is a grass. This study aimed to analyze the leaf mineral composition in two species of lemongrass *Cymbopogon citratus* (DC) Stapf and *Cymbopogon flexuosus* (Nees ex Steud.) Will. Watson, after nitrogen fertilization with composting of bovine manure, goat manure, poultry manure and urea. The mineral composition of the leaf was related with essential oil production, at 160 and 220 days after planting (DAP). The nutritional contents were not affected by nitrogen sources. The species showed differences in macro and micronutrient content and was in the following order for *C. citratus* C > N > K > Ca > P > Mg > Fe > Zn > Mn > Cu and *C. flexuosus* C > N > K > Ca > P > Mg > Fe > Mn > Zn > Cu. At harvest at 160 DAP, *C. citratus* accumulated higher content of P, K, Ca, Al, Fe and Zn as *C. flexuosus* accumulated more Mg and Cu content. Already at 220 DAP, *C. citratus* presented the highest C, P, K, Ca and Fe and *C. flexuosus* higher Mg content, Cu and Mn. Treatments did not affect of dried biomass of *C. flexuosus* nor *C. citratus* at 160 and 220 DAP (2601.2-3913.8 kg ha⁻¹ and 593.7-592.1 kg ha⁻¹ respectively), oil yield (26.4-31.7 and 10.6-12.5 kg ha⁻¹ respectively), nor the oil content (10.0-8.4 and 17.7-21.3 g kg⁻¹). The nutrient content was higher by *C. flexuosus* as a result of high biomass production. The Mg and Mn appear to be related to the high content of citral in the essential oil of *C. flexuosus* that was 80.0% to 160 DAP and 80.8% to 220 DAP while *C. citratus* was 70.6% to 160 DAP and 71.8% to 220 DAP. The nitrogen content does not provide differences to the production of biomass and citral.