

A comparison of the nutritional status of the ground layer vegetation of the veredas on hydromorphic soils and the cerrado *sensu stricto* on well drained soils

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The veredas which occur in the poorly drained valley bottoms of the cerrado region are characterized by hydromorphic soils whereas cerrado *sensu stricto* which occurs on higher grounds are characterized by deep well drained soils (Amaral 2002, Haridasan 1994, Ramos, 2000, 2004). The ground layer communities of both vegetation forms present a great diversity of species (Araújo *et al.* 2002, Guimarães *et al.* 2002, Haridasan 1987, Ramos 2004). There is very little information in the literature on the mineral nutrition of these species (Haridasan 1987, Haridasan *et al.* 1997, Mazorra *et al.* 1987, Villela & Haridasan 1994). A survey of dissertations and theses in the data base of CAPES and publications in SCIELO on different aspects of the vegetation and soils of the veredas came up only with publications of Lima (Lima, 1996, Lima, & Queiroz Neto 1996) and researchers and students of the Universidade Federal de Uberlândia.

Low soil fertility, aluminium toxicity and water deficit during the dry season are growth limiting factors for agricultural crops in the well drained acid soils of the cerrado region which originally supported native cerrado physiognomies of varying tree densities. Present evidence shows that primary productivity and standing biomass of these natural ecosystems are limited by low availability of essential nutrients in the soil and in the parent material (Haridasan 2001). In this presentation an overall comparison of the nutritional status of the ground layer vegetation of veredas and cerrado *sensu stricto* is attempted on the basis of data available from Ramos (2004), Villela & Haridasan (1994) and Silva (2004).

One of the important differences between these two ecosystems was in the higher aerial biomass of ground layer vegetation in the veredas throughout the year without the seasonal variations which are common in the cerrado. This could be attributed to the higher availability of water in the veredas during the dry season whereas water deficit is the rule during the dry season in the cerrado. Though the veredas do not present homogenous soil conditions across the valley bottom (Amaral 2002, Ramos 2000, 2004), water deficit is not acute even along the borders on either side of the veredas and there were no significant gradients in live biomass of ground layer. Availability of exchangeable cations were higher along the bottom of veredas than on the borders on either side.

Among the 38 more extensively occurring species of the veredas analyzed by Ramos (2004), 21 belonged to the Poaceae family and 9 to Cyperaceae. The mean nutrient concentrations in the aerial biomass of grasses ($0.064 \pm 0.017\%$ P, $0.446 \pm 0.120\%$ K, $0.166 \pm 0.100\%$ Ca and $0.094 \pm 0.042\%$ Mg) and Cyperaceae ($0.047 \pm 0.030\%$ P, $0.344 \pm 0.237\%$ K, $0.163 \pm 0.261\%$ Ca and $0.073 \pm 0.054\%$ Mg) were significantly lower than those in other species belonging to Asteraceae, Melastomataceae, Ochnaceae and Onagraceae. Variations among the species within Poaceae and Cyperaceae were very small. The mean concentrations of K, Ca and Mg in the grasses of veredas were lower than the values reported by Silva (2004) for the native grasses in a cerrado *sensu stricto* on a well drained dystrophic latosol. The P concentrations were lower in the cerrado.

There was no evidence that the higher biomass of the ground layer vegetation of veredas was associated with significantly higher concentrations of exchangeable cations in the biomass though P concentrations were slightly higher than in the cerrado. Thus the veredas also seem to be a nutrient deficient ecosystem very much like the cerrado *sensu stricto* which occurs on uplands. It would be natural to expect that veredas would benefit from erosional deposition from higher grounds. However, any such beneficial effects could be counterbalanced by long term leaching losses of soluble nutrients like K.

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