BIOMASS PRODUCTION AND MINERAL ELEMENT CONTENT OF SELECTED USEFUL TROPICAL PLANTS

PRODUÇÃO DE BIOMASSA E CONTEÚDO DE ELEMENTOS MINERAIS DE PLANTAS TROPICAIS ÚTEIS SELECIONADAS

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This current investigation is part of the project "Recultivation of degraded and abandoned monocultures in stable mixed cultures with special reference to soil biological factors" situated in the CPAA/EMBRAPA in Manaus. In this study the biomass production and the mineral element content of selected useful tropical plants will be determined. Parallel to it the availability of nutrient elements in the soil will be analysed. These experiments may allow an evaluation, in which way a sustainable growth of the suggested plant system under the prevailing site conditions is possible. For this study the biomass of six-months and 2½-year-old plants of *Swietenia macrophylla* King (Mogno), *Theobroma grandiflorum* (Spreng.)K.Schum. (Cupuaçu), *Bixa orellana* L.(Urucum), *Schizolobium amazonicum* Ducke (Paricá) and *Bactris gasipaes* H.B.K.(Pupunha) was determined gravimetrically. For a high differentiation of the element content (Ca, Mg, K, P, S, N, Fe, Al) and to reveal physiological sinks within the plants, up to 30 fractions (leaves, wood, bark etc.) were separated and in time series the alterations of the fractions were exhibited. The element content was determined by Optical Emission Spectrometry (ICP-OES), and for selected tissues on a subcellular level with Energy Dispersive X-ray Spectroscopy (EDXS) (exception: N with Kjeldahl). Preliminary results are illustrated for Swietenia. In particular the data for Ca show that the mineral element supply at this experimental area has to be sustainably maintained, in order to guarantee in the long run an acceptable biomass production of highly valuable wood species (i.e. Swietenia macrophylla).

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