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### **Litterfall production and nutrient cycling on Caatinga woody leguminous.**

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The knowledge on nutrient cycling through litter is important for the management of the species in agroforestry systems (SAFs), since the litter is an important way of making plant nutrients available to soil. The aim of this work was to evaluate the litterfall production and nutrient cycling of woody species in an agroforestry system of Caatinga. The study was developed in SAF belonging to Embrapa Goats and Sheep, located in the county of Sobral-CE, Brazil. The evaluated species were four native leguminous from Caatinga: *Mimosa caesalpinifolia* (sabiá), *Mimosa tenuiflora* (jurema-preta), *Libidibia férrea* (jucá) and *Poncianella piramydalis* (catingueira). To collect the litter, collectors were installed under the tree canopy, using six replicates for each species evaluated. The samples were collected monthly during the year 2015. After each collection, the materials were oven dried at 60 °C with circulation, to quantify the total litter production of each species, followed by macro and micronutrients analyzes of the residues of each collection. The period of greatest litter production occurred at the end of the rainy season and at the beginning of the dry period, between June and August. Thus showing an influence of rainfall regime on the production of litterfall. The jucá species presented higher production, followed by catingueira, sabiá and jurema-preta, with 925.8, 332.2, 259.3 and 221.9 g m<sup>-2</sup> of dried mass. Calcium (Ca) presented greater accumulation of litter in the sabiá and catingueira species; nitrogen (N) was higher in the jurema-preta and jucá species; iron (Fe) was the micronutrient with the greatest accumulation in the litter in all species evaluated. It was observed that not all leguminous plants were Ca element superior to N as generally occurs. In this study two out of five species showed higher N compared to Ca. This predominance of Ca in the residues can be due to the fact that it is a structural component of the cells of the vegetal tissue, thus tending to be one of the last to be released to the soil via litter decomposition. Overall, the elements P, K, Mg and S presented low accumulation during the one-year period evaluated. The leguminous on Caatinga greatly contribute with the soil residues accumulation. The adoption of SAFs in Caatinga as a soil conservation system maintain the recycling of nutrients within the agroecosystem, as well as in natural ecosystems, thus avoiding the expansion of areas in the process of degradation.

**Keywords:** semiarid; agroforestry systems; conservationist system.

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