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LIBRO DE RESÚMENES

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Microbiological activity under silvipastoral systems in the central region of Minas Gerais, Brazil

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Soil biological quality (Qs) is an important component for the sustainability of the productive system and its evaluation can contribute to the adoption of appropriate practices. The silvopastoral systems (SSP) allow the integration of sustainable agricultural productivity and are relevant to the recovery of degraded areas. Therefore, we aimed to monitor changes in soil's biological attributes under silvopastoral systems composed of eucalyptus clone GG 100 consortium with Urocloa brizantha cv. (SSP1) with 333 ha-1 and (SSP2) trees with 166 ha-1 trees, and two ha-1 trees (SSP2) deployed in 2011, (SSP3) with 333 ha-1 trees and (SSP4) with 166 ha-1 trees; two pastures in full sun were deployed in 2009 (PS1) and 2011 (PS2), in addition to the native vegetation reference environment. The design was completely randomized in split plot arrangement and three replications. The population of fungus, bacteria, enzyme activity involved in cycling of nitrogen (urease and arginase) and phosphorus (acid and alkaline phosphatase) and basal respiration of the soil were evaluated in two depths (0-5 and 60-100 cm) and distances of the Eucalyptus moor (0.5, 1.25, 3.0 and 7.0 m). After ANOVA, the means were compared by the Tukey test, with α = 5% probability. As a result, it was found that the enzymatic activities were higher in the superficial layer of the soil, independent of the other factors. There was a significant difference for urease activity, basal respiration of the soil and bacterial population depending on the environments, regardless of depth. For urease SSP1 and SSP2 both presented higher values in relation to PS2 pasture. The others did not differ among themselves ($p < 0.05$). SSPs presented high values of soil-like RBS under native vegetation and above pasture. Only the population of bacteria was influenced by the evaluated environments, being superior under PS2. SSPs and pastures were similar to the microbiological parameters of native vegetation, except for PS1 and PS2 in relation to basal soil respiration. The results suggest that SSPs contribute to improvements in the soil's biological quality.

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