



Soil Quality of Bauxite Mining Areas

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The study on soil quality index (SQI) aims to assess the current state of the soil after use and estimating its recovery through sustainable management practices. This type of study is being used in this work in order to check the efficiency of forest recovery techniques in areas that have been deeply degraded by bauxite mining process, and compare them with the area of native forest, through the determination of SQI. Treatments were newly mined areas, areas undergoing restoration (topsoil use with planting of native forest species), areas in rehabilitation (employment of the green carpet with topsoil and planting of native forest species) and areas of native forests, with six repetitions, in areas of ALCOA, in the municipality of Poços de Caldas/MG. To this end, we used the additive pondered model, establishing three functions: Fertility, water movement and root development, based on chemical parameters (organic matter, base saturation, aluminum saturation and calcium content); physical (macroporosity, soil density and clay content); and microbiological testing (basal respiration by the emission of CO_2). The SQIs obtained for each treatment was 41%, 56%, 63% and 71% for newly mined areas, native forest, areas in restoration and rehabilitation, respectively. The recovering technique that most approximates the degraded soil to the soil of reference is the restoration, where there was no statistically significant difference of areas restored with native forest. It was found that for the comparison of the studied areas must take into account the nutrient cycling, that disappear with plant removal in mining areas, once the soil of native forest features low fertility and high saturation by aluminum, also taking in account recovering time.