



The Basal Respiration Rate of the Soil in Mined Areas

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Soils form the basis of sustaining terrestrial ecosystems. Changes in space and time of their chemical, physical and mainly biological characteristics bring relevant impacts on the composition, structure and functioning of ecosystems. The objective of this study was to evaluate the basal respiration rate in relation to secondary succession in restoration areas, as well as in reference ecosystems. Eighteen areas were evaluated, including 6 forest restoration areas, 6 native forests and 6 newly mined forests located in Poços de Caldas/Minas Gerais/Brazil. In each study area, at the depth of 0-5 cm, 15 soil sub-samples were collected, systematically distributed, which were mixed and homogenized to form a single sample composed of area. Three 50g samples of eighteen areas were individually placed in hermetically sealed containers and incubated in the dark and at $25 \pm 2^\circ\text{C}$ for 7, 14 and 21 consecutive days. The basal respiration rate of the soil in the areas under restoration reached values similar to those of the native forest and much higher than those of the newly mined area. The forest restoration was efficient in triggering a soil recovery process, resulting in the reestablishment, in a few years, of the production of CO_2 by the microorganisms already very similar to those of the reference ecosystem.