TITLE: MICROBIAL BIOMASS CARBON OF SOILS CULTIVATED WITH VEGETABLES IN NO-TILL SYSTEM

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ABSTRACT: The production of vegetables in a direct-planting system has grown over the years. In this system, the physic-chemical and biological characteristics tend to present significant improvements in relation to conventional systems. The organic matter of the soil, composed primarily of carbon can be studied in different fractions. Among these fractions, the carbon of microbial biomass (CMB) is the living fraction of MO, responsible for biochemical and biological processes in the soil and substantially altered by the conditions imposed by the environment. This work aimed to evaluate the influence of the cultivation system in the soil CMB content. The experiment was conducted in the experimental area of Embrapa Vegetables, Brasilia, DF. In the experiment was deployed in a 3x2 factorial, in which the first factor was the cultivation system (no-till system – NTS, planting system with reduced preparation – PSR, and the system of planting with conventional preparation – CP) and the second vegetable covers for straw (maize – m or maize and mucuna consortium – mm). The soil samples were collected at three depths (0-5 cm; 5-10 cm and 10-30 cm). The determination of the CMB were carried out by the method of irradiation-extraction. The CMB content ranges from 146.78 to 438.27 mg kg-1 with a gradual decrease with depth. Soil management systems influenced CMB, in which conservation systems (NTS and PSR) showed greater CMB values, which can be explained by the greater microbial sensitivity, being adversely affected by soil development. The use of the maize with mucuna for the formation of straw for soil coverage raised the CMB content in the NTS and PSR systems at all depths and on CP in the subsurface layers, relative to the systems that used only the grass as coverage. The smallest CMB values found in the conventional system in the layer of 0-5 cm. It is given by the fact that the soil redevelopment favours a higher speed of decomposition of organic materials, which decreases the substrate for developing microorganisms. Under no-till there has always been a decrease in the contents of CBM in depth. For the other systems, this decrease was dependent on the culture involved (maize or maize + mucuna). This stratification of the CMB demonstrates the interference of the accumulation of superficial organic matter and the action of the roots that favours the proliferation of microorganisms.

Palavras chave: conventional tillage, no-tillage, microbial *activity,* soil organic carbon;