

**Title: BACTERIAL COMMUNITY DIVERSITY AS SOIL QUALITY INDICATOR IN ORGANIC FARMING OF SEROPÉDICA – RJ**

**Authors:** Coelho, I.S.<sup>1</sup>, Nascimento, E.C.<sup>1</sup>, Carvalho, B.O.<sup>1</sup>, Lima, J.O.<sup>1</sup>, Soares, I.C., Souza, M.M.S.<sup>1</sup>, Zonta, E.<sup>1</sup>

**Institution:** <sup>1</sup>UFRRJ (Federal Rural University of Rio de Janeiro (Rodovia BR 465 - Km 7 - Seropédica - RJ)

**Abstract:**

Organic farming has become one of the fastest growing sectors in agriculture. The interest in organic food has increased worldwide in response to concerns about conventional agricultural practices, food safety, human health, animal welfare and environmental protection. Physical, chemical, and biological properties, processes, and characteristics of soil are quality indicators that can be measured to monitor its changes. Since soil quality is strongly influenced by microbe-mediated processes, and its efficiency can be related to microbial community diversity, it is likely that it can serve as indicator of soil quality. Therefore, the aim of this study is to evaluate the effect of different management practices on the survey of bacterial communities in soils under organic farming of Seropédica RJ. The soil samples were originated from four properties of family agriculture located in the Seropédica – RJ. The farmers are associated to SPG - ABIO (Participatory Guarantee System - ABIO). Native forest, as a reference, pasture and organic farming areas were selected in each property. Three landscapes position representing topographical features were evaluated in the organic farming area, called lower, middle and upper third. After extraction of bacterial community DNA from soil, universal primers were used to amplify by PCR (Polymerase Chain Reaction) the V3 region of 16S rDNA of bacteria. PCR products were separated by Denaturing Gradient Gel Electrophoresis (DGGE). The DGGE gels showed banding patterns of sufficient complexity and variability to investigate differences in microbial communities from the management practices and within the lower, middle and higher sites in the organic farming. Areas of native forest and pasture showed a higher bacterial diversity than areas cultivated with organic farming. Among the sites cultivated with organic system, the middle third had higher OTUs (Operational Taxonomic Units), which may be related to the system losses of the highest parts to the lowest of the landscape. The DGGE technique allows rapid comparison of samples and can be used to detect differences in bacterial communities in soils from different farming systems.

**Keywords:** DGGE (Denaturing Gradient Gel Electrophoresis); family agriculture, management practices, soil quality

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