



Dynamics of bacterial communities in soils of rainforest fragments under restoration processes

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Abstract

The Brazilian Atlantic Forest (“Mata Atlântica”) has been largely studied due to its valuable and unique biodiversity. Unfortunately, this priceless ecosystem has been widely deforested and only 10% of its original area still remains. Many projects have been successfully implemented to restore its fauna and flora but there is a lack of information on how the soil bacterial communities respond to this process. Thus, our aim was to evaluate the influence of soil attributes and seasonality on soil bacterial communities of rainforest fragments under restoration processes. Soil samples from a native site and two ongoing restoration fragments with different ages of implementation (10 and 20 years) were collected and assayed by using culture-independent approaches. Our findings demonstrate that seasonality barely altered the bacterial distribution whereas soil chemical attributes and plant diversity highly influenced the bacterial community structure during the restoration process. Moreover, the strict relationship observed for two bacterial groups, Solibacteriaceae and Verrucomicrobia, one with the youngest (10 years) and the other with the oldest (native) site suggests their use as bioindicators of soil quality and soil recovery of forest fragments under restoration.