

## **Influence of organic fertilization on the number of culturable diazotrophic endophytic bacteria isolated from sugarcane**

Ricardo Pariona-Llanos, Felipe Ibañez de Santi Ferrara, Heloiza Ramos Barbosa

The numbers of culturable diazotrophic endophytic bacteria (CDEB) from roots, stems and leaves of sugarcane submitted to organic, inorganic or no fertilization were compared. In order to determine the size of the N<sub>2</sub> fixing populations, the Most Probable Number technique (MPN) was used. The quantification of diazotrophic bacteria by using the acetylene reduction assay (ARA) was more accurate than observing the bacterial growth in the vials; to confirm N<sub>2</sub> fixing capability, the detection of gene *nifH* was performed on a sample of 105 isolated bacteria. The production of extracellular enzymes involved in the penetration of the plants by the bacteria was also studied. The results showed that organic fertilization enhances the number of CDEB when compared with conventional fertilization used throughout the growing season. The maximum number of bacteria was detected in the roots. Roots and stems presented the greatest number of CDEB in the middle of the cropping season and in leaves numbers varied according to the treatment. Using two pairs of primers and two different methods, the *nifH* gene was found in 104 of the 105 tested isolates. Larger amounts of pectinase were released by isolates from sugarcane treated with conventional fertilizers (66%), whereas larger amounts of cellulase were released by strains isolated from sugarcane treated with organic fertilizers (80%).

**Keywords:** Most probable number, Endophytic diazotrophic bacteria, Sugarcane, Organic fertilization

This document was created with Win2PDF available at <http://www.win2pdf.com>.  
The unregistered version of Win2PDF is for evaluation or non-commercial use only.  
This page will not be added after purchasing Win2PDF.