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Diversity of endophytic bacteria in Brazilian sugarcane

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ABSTRACT. Endophytic bacteria live inside plant tissues without causing disease. Studies of endophytes in sugarcane have focused on the isolation of diazotrophic bacteria. We examined the diversity of endophytic bacteria in the internal tissues of sugarcane stems and leaves, using molecular and biochemical methods. Potato-agar medium was used to cultivate the endophytes; 32 isolates were selected for analysis. DNA was extracted and the 16S rRNA gene was partially sequenced and used for molecular identification. Gram staining, catalase and oxidase tests, and the API-20E system were used to characterize the isolates. The strains were divided into five groups, based on the 16S rRNA sequences. Group I comprised 14 representatives of the Enterobacteriaceae; group II was composed of Bacilli; group III contained one representative, *Curtobacterium* sp; group IV contained representatives of the Pseudomonadaceae family, and group V had one isolate with an uncultured bacterium. Four isolates were able to reduce acetylene to ethylene. Most of the bacteria isolated from the sugarcane stem and leaf tissues belonged to Enterobacteriaceae and Pseudomonaceae, respectively, demonstrating niche specificity. Overall, we found the endophytic bacteria in sugarcane to be

more diverse than previously reported.

Key words: Endophytic bacterium; Microbial diversity; Sugarcane; 16S rRNA

