

EFFECT OF NH₄⁺ LEVELS ON THE EXCRETION OF INDOLE-3-ACETIC ACID
BY *HERBASPIRILLUM SEROPEDICAE*

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Herbaspirillum seropedicae is a nitrogen-fixing bacterium found in association with economically important grasses, such as corn, rice, sugarcane and sorghum. It synthesizes the plant growth-promoting auxine indole-3-acetic acid (IAA) under defined growth conditions. Analysis of the *H. seropedicae* genome showed that at least four distinct pathways for the conversion of tryptophan into IAA are possible in this microorganism. One of these pathways would involve a nitrile hydratase coded by the *nthA* gene. In this work we compared the IAA excretion profiles of the wild-type strain (Z78) of *H. seropedicae* with a nitrile hydratase (*nthA*) mutant strain, under different ammonium concentrations. Contrary to the initial expectations, the IAA secretion profiles of both strains were very similar, and both strains secreted significant amounts of IAA only under high ammonium concentrations. The results suggest that the *H. seropedicae* nitrile hydratase coded by the *nthA* gene does not have a major role in the IAA biosynthesis, and *H. seropedicae* synthesizes significant amounts of IAA only under high ammonium conditions. Keywords: *Herbaspirillum seropedicae*, indole-3-acetic acid, nitrile hydratase, ammonium. Supported by CAPES, PRONEX (FINEP/CNPq/MCT), CNPq/PADCT III, Paraná Tecnologia and Fundação Araucária.