



**PHENILALANINE AMMONIA LIASE AND GLUTAMINE SYNTHETASE IN WHEAT
PLANTS (cv. CD120) IN VITRO INOCULATED WITH *HERBASPIRILLUM
SEROPEIDICAE* SMR1**

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Herbaspirillum seropedicae is a bacterium able to establish endophytic associations with variety of wheat CD 120. The endophytic bacterias are found in greater numbers in the roots, gradually decreasing from the stem to the leaves. It is relevant to its potential for Plant Growth Promoting and therefore also called PGPB. However they can be understood as pathogens depending on the genotype and the environment. One of the responses of plants to bacterial pathogens is the synthesis of pathogenesis-related proteins, including increased activity of enzymes related to defense and nitrogen metabolism. The aim was to evaluate the in vitro response of wheat plants CD120 to the presence of *H. seropedicae* checking activity of glutamine synthetase (GS) and phenylalanine ammonia lyase (PAL). Pre-germinated seeds were transferred to glass tubes containing MS medium without nitrogen and sucrose, inoculated with 0.25 mL containing 1.5×10^7 CFU/mL bacteria. After 3 days of inoculation it was verified the presence of endophytic bacteria on the roots, as described in another experimental model. In 20 days enzyme activity were determined as well as mass and overall size of roots and mass of leaves. Inoculated roots were lowest reproducing the data already described for CD120 as well as root mass. However, in the literature it was observed the opposite effect to the CD 104 when inoculated with *Azospirillum brasilense*. The GS activity was higher in the roots and shoots of the non-inoculated plants. The PAL activity was lower in roots inoculated than non-inoculated plants, and there was no difference in the aerial parts even leaves being senescent in non-inoculated plants. The plant-bacteria interaction in this growth stage in the experimental model reproduces the observed previously. However the experimental in vitro model by itself creates stress but bacteria seem to be acting as a mitigating agent.

Key Words: enzymes, pathogenesis-related proteins, plant growth promoting bacteria

