

Analysis of the regulatory region of the *hkhC* gene in *Azospirillum baldaniorum* Sp245

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Azospirillum baldaniorum Sp245 is a plant growth-promoting bacterium, characterized by its ability to fix nitrogen and diverse carbon metabolism capabilities appropriate for plants association by uptake of roots exudates through a process of chemotaxis; in which a Histidine kinase (HK) detect external stimuli and their response regulator (RR) produced a specific response through different functions. These systems are known as dual component systems (DCS)¹. In *A. baldaniorum* Sp245 the *hkhC* gene is located on plasmid 3 and codes for a hybrid HK (HkhC), has conserved catalytic motifs and has been demonstrated to participate in motility. The expression of DCS genes is a powerful mechanism controlled by σ factors in response to specific signals related to development, nutrition, or stress, however, for many organisms are largely unknown. In this work, a bioinformatic analysis, was used to identify binding regions for σ_{54} and σ_{70} factors in a fragment of 270 bp upstream of the *hkhC* gene². Subsequently, a transcriptional fusion was performed between this fragment of the *hkhC* gene and the mCherry autofluorescent gene, to obtain the tagged mCherry strains named as "*phkhC-mCherry*". This transcriptional fusion was evaluated in cultures with different carbon sources supplemented with KNO₃ or NH₄Cl. The results showed that the promoter is functional.

References

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