TRANSCRIPTIONAL REGULATION OF GENES INVOLVED IN THE SYMBIOSIS BETWEEN NOSTOC AND ORYZA

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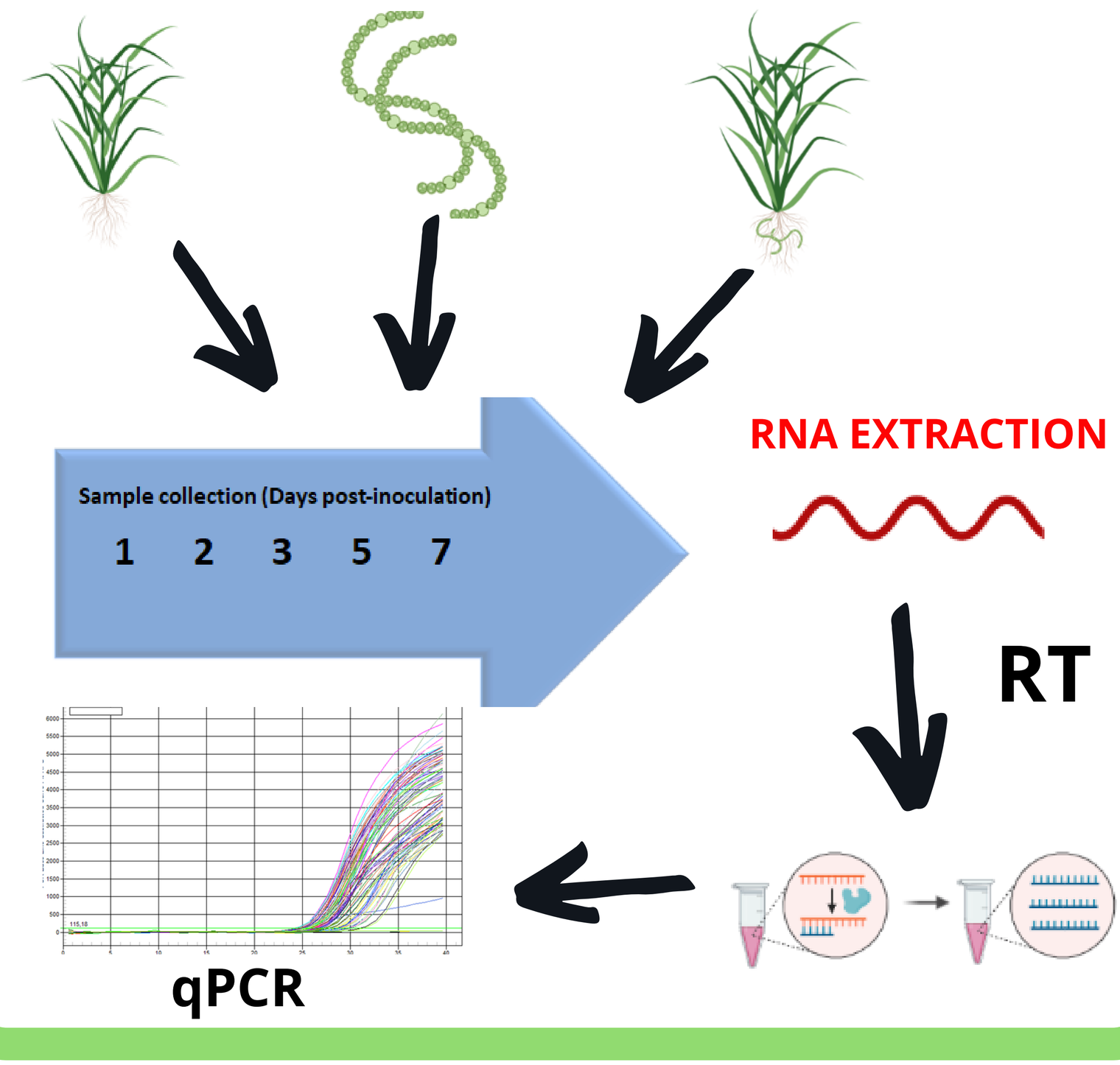
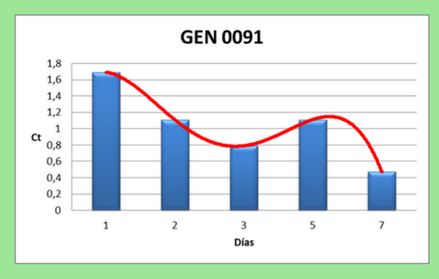
INTRODUCTION

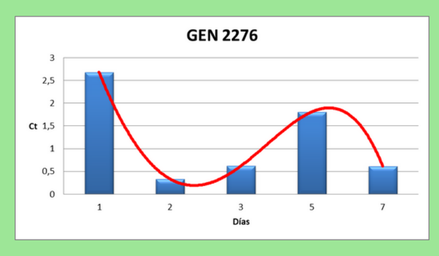
Cyanobacteria of the genus Nostoc are capable of establishing symbiosis relationships with many different types of plants. In these mutualistic relationships the cyanobacterium provides the plant with fixed nitrogen, while the plant provides the cyanobacterium with protection from hostile environments and carbon compounds as energy for N2 fixation. It has recently been described that Nostoc punctiforme performs a stable symbiosis with Oryza sativa (Álvarez et al., 2020). In order to know the molecular mechanisms involved in the recognition between the plant and the cyanobacterium, a proteomic study was carried out in the early stages of co-culture of both organisms. In this study, proteins with homology to the Nod factors of Rhizobium sp. were identified in Nostoc, which could be related to signaling in the plant. The aim of this work is to study the regulation of the expression of the genes encoding these Nod proteins by means of RT-qPCR which results are showed in figures 1-8.

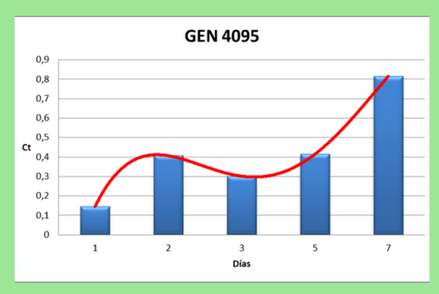
MATERIALS AND METHODS

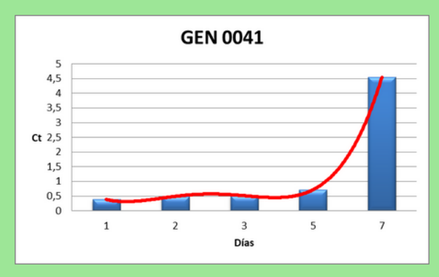


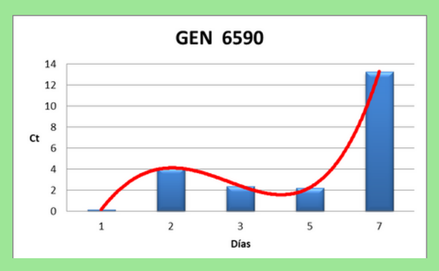
RESULTS

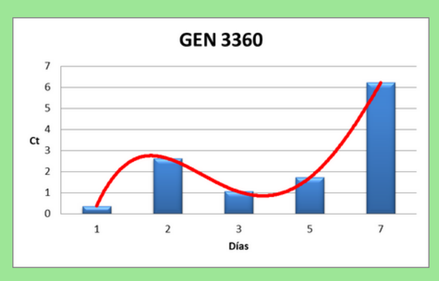












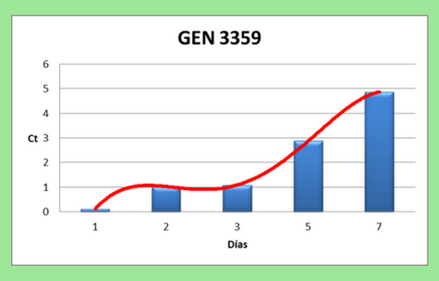


Figure 1-8. Expresions of the genes encoding Nod proteins by means of qPCR.

References: ·Álvarez, C., Navarro, J.A., Molina-Heredia, F.P. & Mariscal, V. Endophytic colonization of rice (Oryza sativa L.) by the symbiotic strain Nostoc punctiforme PCC 73102. Molecular Plant-Microbe Interactions 33, 1040–1045 (2020). DOI: 10.1094/MPMI-01-20-0015-SC