Analysis of factors governing nematode-host specificity in bacterium *Photorhabdus*

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Majority of animals form symbiotic relationships with bacteria. Some animals partner with a single bacterial symbiont, while other animals symbiose with simple or complex bacterial consortia. The insect parasitic nematode *Heterorhabditis* lives in mono-specific symbiotic relationship with the enterobacterium *Photorhabdus* and is a tractable genetic model for the study of animal-microbe relationships. *Heterorhabditis-Photorhabdus* association is highly species-specific. Present work was undertaken to identify factors which might be involved in the host specificity of the bacterial symbionts *Photorhabdus* with its nematode partner *Heterorhabditis*. Total protein profile of 2 *Photorhabdus* sub-species, *P. luminescens* subsp. *laumondii* (isolated from *H. bacteriophora*) and *P. luminescens* subsp. *akhurstii* (isolated from *H. indica*) was compared by 2D Gel electrophoresis followed by identification of differentially expressed proteins by MALDI-TOF MS. Out of 43 proteins analyzed, 13 unique proteins were identified in *P. luminescens* subsp. *laumondii* comprising 2 catalases, 3 ABC-type transporters, 1 translation elongation factor, 1 outer membrane Protein, 1 peptidase, 1 chaperon protein, 2 antibiotic synthesis regulators and 2 hypothetical proteins. Remaining 20 were from *P. luminescens* subsp. *akhurstii*, showing 2 transcription regulators, 4 dehydrogenases, 2 ABC-type transporter, 1 DNA topoisomerase, 1 catalase, 1 kinase, 2 Tol B (protein import), 2 involved in amino acid synthesis, 2 involved in phosphate biosynthesis and 3 hypothetical proteins. Here we identified some of the proteins that might be involved in nematode-host specificity between *Heterorhabditis* and *Photorhabdus*.

Biography

Jyoti Kushwah has completed her MSc (Microbiology) in 2008 from Jiwaji University, India and she is currently pursuing her PhD (Microbiology) under the guidance of Dr. Veena Garg; Professor of the Department of Biotechnology and Biosciences, Banasthali University and Dr. Vishal Singh Somvanshi; a Senior Scientist at the Department of Nematology of Indian Agricultural Research Institute, India.

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