

Two Rich Sources of Bacteria antagonistic to *Fusarium solani*.

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Fusarium solani [(Mart.) Sacc.] is a widely occurring soil-borne fungus that causes root rot in several crops. In an experiment at the Punjab Agricultural University, Ludhiana, India almost all the chickpea plants were infected by this fungus, causing black root rot. None of the ten (three strains each of *Trichoderma spp* and *Pseudomonas spp.*, and four bacterial isolates from a commercial formulation) potential antagonistic fungi/bacteria obtained from different sources reduced the disease intensity in a pot experiment, involving soil from the experimental site. Therefore, a search to identify potential antagonists from all possible sources was launched. Organic farmers generally claim that their crops are healthier than those raised with chemical fertilizers as a source of crop nutrients. It was therefore hypothesized that composts, a widely used source of crop nutrients by organic farmers, may contain some disease antagonistic factors, including bacteria. A rapid method of screening a large number of bacteria and fungi in soil or compost and capture those with ability to suppress growth of *F. solani* in plate culture was developed and used. A particular source of compost prepared from leaf litter was found to have potential antagonistic bacteria. Further studies revealed that an ornamental plant (*Billbergia spp.*) and soil from tunnels made by termites was a rich source of such bacteria. At the stem apex, in axil of leaves, a total of about 1-2g of well-composted organic material was generally observed. This material contained 1.02×10^6 bacteria g^{-1} of which $8.50 \times 10^4 g^{-1}$ (8%) were antagonistic to *F. solani*. The termite soil had 3.50×10^5 bacteria g^{-1} of which 1.15×10^5 (33%) were antagonistic to *F. solani*. It is likely that the isolated bacteria may also be antagonistic to some disease causing fungi.

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