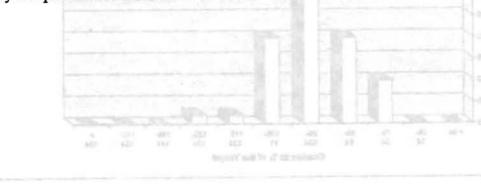
Single Kernal Distribution on Beta-Seed-Incrusting with RTF Active Ingradient: Thirm: Target: 12 g aLAJoit with server

WOZNIAK, CHRIS A., USDA, Agricultural Research Service, Northern Crop Science Laboratory, P.O. Box 5677, Fargo, ND 58105. - <u>Nutrition and mediation of larval</u> development of the sugarbeet root maggot by bacteria.

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Tetanops myopaeformis Roder, the sugarbeet root maggot (SBRM), maintains an internal population of gut-associated microbes. Identification of these insect-endogenous bacteria (IEB) on selective and non-selective media from third instar larvae from four geographic locations and on root feeding sites resulted in a total of 53 species characterized. Isolation of bacteria from the sugarbeet rhizoplane in the absence of SBRM, revealed a subset of 8 species common to both SBRM and sugarbeet roots. Stenotrophomonas maltophilia was the only species ubiquitously encountered from all sources tested. Surface disinfestation of SBRM eggs yielded gnotobiotic larvae which were co-cultured with axenic sugarbeet cells. First instars were observed to feed on cells growing on plant culture medium (MS), but moulted to the second instar at low levels; no third instars were produced. Addition of S. maltophilia inoculum provided for development to the third and final instar. Three other species, E. coli JM109, Serratia liquefaciens, and Pseudomonas syringae pv. aptata, were also found capable of supplying a moulting factor which resulted in enhanced larval development. Amendment of gnotobiotic cultures with cell-free culture filtrate of S. maltophilia resulted in the production of third instar SBRM also, indicating the presence of a soluble factor needed for development. Consumption of sugarbeet tissues was facilitated by the presence of bacteria.



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