

ISRAEL

ISRAELI PARTICIPANTS IN COST 850 ACTION:

Itamar Glazer

Agricultural Research Organization,
Volcani Center (ARO)
Bet Dagan 50-250, Israel
Tel: 972-3-9683903
Fax: 972-3-9604180
E mail: glazeri@int.gov.il



Main research activities related to EPNs:

1. Application of nematodes against key pests in Israel (White grubs, lepidopteran pests, ticks, thrips)
2. Application techniques- Foliage application, formulations, drip-irrigation.
3. EPN ecology and natural occurrence.
4. Survival strategies and mechanisms of EPN- Desiccation, osmotic and heat tolerance.
5. Genetic, molecular and physiological basis of survival mechanisms in EPNs.

Recent Publications (last 6 years):

- Shapiro, D. I. and Glazer, I. and Segal, D. 1997. Genetic improvement of heat tolerance in *Heterorhabditis bacteriophora* through hybridization. *Biological control* 8: 153-159.
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- Hashmi, S., Hashmi, G., Glazer, I. and Gaugler R. 1997. Thermal response of *Heterorhabditis bacteriophora* transformed with the *Caenorhabditis elegans hsp70* encoding gene. *J. Exper. Zool.* 281:164-170.

- Glazer, I., Salame, L. and Segal, D. 1997. Genetic enhancement of nematicidal resistance of entomopathogenic nematodes. *Biocont. Sci. and Tech.* 7: 499-512
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- Glazer I. , Koltai, H., Zioni, S. and Segal, D 1993. Induction and characterization of mutations of *Heterorhabditis bacteriophora* Proceedings of EEC/COST Symposium and Workshop on 'Genetics of entomopathogenic nematode-bacterium complex'. Burnell A. M., Ehlers, R. U. & Masson J. P. [Eds.], pp. 152-163. EUR 1581 EN Report.
- Griffin, C.T., Campbell, J. F., Westerman, P. R. and Glazer, I. 1993. Bioassays for screening and selection of improved lines of entomopathogenic nematodes. Proceedings of EEC/COST Symposium and Workshop on 'Genetics of entomopathogenic nematode-bacterium complex'. Burnell A. M., Ehlers, R. U. & Masson J. P. [Eds.], pp. 208-214. EUR 1581 EN Report.
- Popiel, I, Holtmann, K. D., Glazer, I. & Womersley, C. 1993. Commercial Storage and Shipment of Entomogenous Nematodes. US Patent 5,183,950.
- Kocan, K. M., Pidherney, M. S., Bluin, E. F., Claypool, P. L. Samish, M., and Glazer I. 1997. Interaction of entomopathogenic nematodes (Steinernematidae) with selected species of ixodid ticks (Acari: Ixodidae). *Journal of Medical Entomology* 35: 514-520. [Invited paper]
- Kocan, K. M., Bluin, E. F., Pidherney, M. S. Claypool, P. L. Samish, M., and Glazer I. 1998 .
Entomopathogenic nematodes as potential biological control method for ticks. *Proceedings of NY Academy of Science* 849: 355-365.
- Glazer, I., Salame, L. and Segal, D. 1997 Genetic enhancement of nematicidal resistance of entomopathogenic nematodes. *Biocont. Sci. and Tech.* 7: 499-512
- Solomon A., Paperna I., Glazer I. and Alkon U. P. 1997. The migratory behavior and desiccation tolerance of protostrongylid nematode first stage larvae. *Intern. J. Parasitol.* 27: 1517-1522.
- Kocan, K. M., Pidherney, M. S., Bluin, E. F., Claypool, P. L. Samish, M., and Glazer I. 1998. Interaction of entomopathogenic nematodes (Steinernematidae) with selected species of ixodid ticks (Acari: Ixodidae). *Journal of Medical Entomology* (In press)

- Efron, D., Ben-Yakir D., Chen M. and Glazer I. 1998. Evaluation of entomopathogenic nematodes for control of the European Corn Borer (Lepidoptera: Pyralidae) on sweet corn. *Phytoparasitica* 26: 101-108.
- Solomon A., Paperna I., Glazer I.. 1998. Desiccation tolerance of *Muellerius cf. capillaris* (Nematoda: Metastrongyloidea) first-stage larvae. *J. Parasitol.* 84: 802-805.
- Navon A. , Keren, S., Salame L. and Glazer, I . 1998. An edible-to-insects calcium alginate gel as a carrier for entomopathogenic nematodes. *Biocon. Sci. & Technol.* 8:429-437.
- Solomon A., Paperna I., Glazer I.. 1999. Induction of anhydrobiosis on the entomopathogenic nematodes *Steinernema feltiae*. *Nematology.* 21: 1: 61-68
- Samish, M., Alekseev E. and Glazer I. 1998 The effect of the soil environment upon anti-tick activity of entomopathogenic nematodes. *Ann. NY Acad. Sci.* 849: 402-404.
- Glazer, I., Salame, L., Goldenberg S. and Blumberg, D. 1999. Susceptibility of sap beetles (Coleoptera: Nitidulidae) to entomopathogenic nematodes. *Biocon. Sci. and Technol.* 9:259-266
- Segal, D. and Glazer. I. 1998. Genetic approaches for enhancing beneficial traits in entomopathogenic nematodes. *Japanese J. Nematol.* 28:101-107.
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- Solomon A., Cabaret J., Glazer, I. and Paperna I. 1999. Desiccation tolerance of *Muellerius capillaris* first-stage larvae from Israeli arid and French temperate habitats and their compatibility to the land snail *Theba pisana*. *J. Parasitology* 84: 802-805.
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- Glazer I and Salame L. 2000. Osmotic survival of the entomopathogenic nematode *Steinernema carpocapsae*. *Biological control* 18:251-257

- Efron D, Nestel, D. and Glazer I. 2000. Spatial analysis of entomopathogenic nematodes and insect hosts at a citrus grove in semi-arid region. *Environ. Entomol.* (accepted)
- Liu Q-Z, and Glazer, I. 2000. Factors affecting desiccation survival of the entomopathogenic nematodes, *Heterorhabditis bacteriophora* HP88 *Phytoparasitica* 28: 331-340.
- Solomon, A. Solomon, R., Paperna, I. and Glazer, I. 2000. Desiccation stress of entomopathogenic nematodes induces the accumulation of a novel heat-stable-protein. *Parasitology*. 121:409-416.
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- Iraki N., Salah, N, Sansour, M. A., Segal, D., Glazer, I., Johning, S.-A. Hussein, M. A., Ehlers, R.-U. 2000. Isolation and characterization of two entomopathogenic nematode strains, *Heterorhabditis indica* (Nematoda, Rhabditia) , from the West Bank, Palestinian Territories. *J. Appl. Ent.* 124: 375-380
- Alchanatis, V., Navon, A., Glazer I. and Levski S. 2000. An Image Analysis System for measuring Insect Feeding Effects caused by biopesticides. *Journal of Agricultural Engineering Research* 77:289-296
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- Zitman-Gal, T., Solomon, A., Glazer I. and H. Koltai (2001) Reduction in the levels of glycogen and glycogen synthase transcripts during desiccation in the insect-killing, desiccation tolerant nematode *Steinernema feltiae* IS-6 *J. Parasitol.* 87: 725-732
- Gindin, G., Samish, M., Alekseev E. and Glazer, I. 2001. The susceptibility of *Boophilus annulatus* (Ixodidae) ticks to entomopathogenic fungi. *Biocon. Sci. and Tech.* 11: 113-120.
- Samish, M., Gindin, G., Alekseev E. and Glazer, I. 2001. Pathogenicity of entomopathogenic fungi to different developmental stages of *Rhipicephalus sanguinus* (Acari: Ixodidae). *J. Parasitol.* 87: 808-812.
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- Navon, A., Nagalakshmi, V. K., Levski, S., Salame. L. and Glazer, I. 2002. Effectiveness of Entomopathogenic Nematodes in an Alginate Gel Formulation Against Lepidopterous Pests. *Biocon. Sci. Technol.* 12: 737-746
- Zitman-Gal, T., Glazer, I and Koltai, H. (2003). Differential gene expression during desiccation stress in *Steinernema feltiae* IS6 and *Caenorhabditis elegans* nematodes. *J. Parasitology (in press)*

COST Related Publications

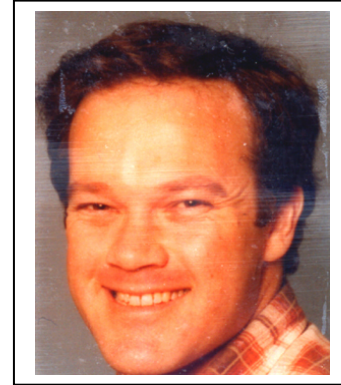
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- Glazer I. , Koltai, H., Zioni, S. and Segal, D 1993. Induction and characterization of mutations of *Heterorhabditis bacteriophora* Proceedings of EEC/COST Symposium and Workshop on 'Genetics of entomopathogenic nematode-bacterium complex'. Burnell A. M., Ehlers, R. U. and Masson J. P. [Eds.]. pp. 152-163. EUR 1581 EN Report.
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- Glazer, I., Richardson, P., Boemare, N. and Coudert, F. [Eds] 1999. 'Survival Strategies of Entomopathogenic Nematodes' EUR EN Report.

ISRAEL

ISRAELI PARTICIPANTS IN COST 850 ACTION:

Daniel Segal

Department of Molecular Microbiology
And Biotechnology
Tel-Aviv University
Tel-Aviv 69978, Israel
Tel: 972-3-640-9835
Fax: 972-3-640-9407
E mail: dsegal@post.tau.ac.il



Main research activities related to EPNs:

1. Genetics of EPN.
2. Genetic improvement of EPN.
3. Molecular genetics and genomics of EPN.
4. Cellular and molecular analysis of nematode-host interaction.

Publications:

Glazer, I, Gaugler R., and Segal, D. 1991. Genetics of the entomoparasitic nematode *Heterorhabditis bacteriophora* strain HP88 : Characterization of the diversity of beneficial traits in a wild type population. *J. Nematology* 23: 324-333.

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Glazer I., Koltai, H., Zioni, S. and Segal, D. 1993. Life cycle and mode of reproduction in *Heterorhabditids*. Proceedings of EEC/COST Symposium and Workshop on 'Genetics of entomopathogenic nematode-bacterium

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- Glazer I. , Koltai, H., Zioni, S. and Segal, D 1993. Induction and characterization of mutations of *Heterorhabditis bacteriophora* Proceedings of EEC/COST Symposium and Workshop on 'Genetics of entomopathogenic nematode-bacterium complex'. Burnell A. M., Ehlers, R. U. & Masson J. P. [Eds.]. pp. 152-163. EUR 1581 EN Report.
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- Koltai, H, Glazer, I,m and Segal, D. 1995. Reproduction of the entomopathogenic nematode *Heterorhabditis bacteriophora* Poinar 1976: hermaphroditism vs. amphimixis. *Fund. Appl. Nematology* 18: 55-61.
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- Glazer, I., Salame, L. and Segal, D. 1997 Genetic enhancement of nematicidal resistance of entomopathogenic nematodes. *Biocont. Sci. and Tech.* 7: 499-512
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