

## Professional biography and academic background

Dates	Description
1995-1998	B.Sc. Department of Biology and Environmental Sciences; The Hebrew University of Jerusalem, Israel.
1999 – 2002	M.Sc. studies at the Department of Plant Pathology and Microbiology, Faculty of Agriculture Food and Environmental Quality, the Hebrew University of Jerusalem <b>M.Sc. <i>Magna Cum Laude</i></b> <u>Title of thesis:</u> The influence of boron on the development of early blight and late blight in potatoes and tomatoes. <u>Supervision by:</u> Prof. Dani Shtienberg and Dr. Uri Yermiyahu. <b>Thesis <i>Summa Cum Laude</i>.</b>
2002	Three months project in CIP (Centro Internacional del las Papas), Quito, Ecuador. Modification and parameterization of the LATEBLIGHT model with Dr. Greg Forbes.
2003 – 2009	Ph.D. studies at the Department of Crop Sciences, Faculty of Agricultural, Food and Environmental Quality, the Hebrew University of Jerusalem. <u>Title of thesis:</u> Ecological, epidemiological and genetical characterization of fungi causing Ascochyta blight in wild and domesticated <i>Cicer</i> spp. <u>Supervision by:</u> Prof. Shahal Abbo and Dr. Amir Sherman.
2006	Visiting scholar for 3 months in the laboratory of Prof. Tobin L. Peever, Department of Plant Pathology, Washington State University, Pullman, USA. Studying the genetic base of temperature adaptation of the fungal pathogen <i>Didymella rabiei</i> .
2008-2010	Postdoctoral position at the Department of Plant Pathology & Plant-Microbe Biology, Cornell University, Ithaca NY, USA, with Prof. Michael G. Milgroom. <u>Research subject:</u> Studying the roles of host specialization and aggressiveness in the genetic divergence of the grape powdery mildew fungus, <i>Erysiphe necator</i> , at its center of origin.
2010-2011	Postdoctoral position at the Department of Plant Pathology, The Agricultural Research Organization, Volcani Center, Bet Dagan, with Prof. Dani Shtienberg. <u>Research subject:</u> The epidemiology of <i>Clavibacter michiganensis</i> in nurseries.
2011-to date	Research Scientist at the ARO Volcani Center, Institute of Plant Protection, Department of Plant Pathology and Weed Research.

### 1. Articles in Reviewed Journals

1. Lichtenzveig, J., Gamliel, E., **Frenkel, O.**, Michaelido, S., Abbo, S., Sherman, A. and Shtienberg, D. (2005). Distribution of mating types and diversity in virulence of *Didymella rabiei* in Israel. *Eur. J. Plant Pathol.* 113: 15-24.
2. **Frenkel, O.**, Shtienberg, D., Abbo, S. and Sherman, A. (2007). The sympatric Ascochyta complex of wild *Cicer judaicum* and domesticated chickpea. *Plant Pathol.* 56: 464-471.

3. **Frenkel, O.**, Sherman, A., Abbo, S. and Shtienberg, D. (2008). Differential aggressiveness among *Didymella rabiei* isolates from domesticated chickpea and its sympatric wild relative *Cicer judaicum*. *Phytopathology* 98: 600-608.
4. **Frenkel, O.**, Peever, TL., Chilvers, MI., Ozkilinc, H., Can, C., Abbo S., Shtienberg, D. and Sherman, A. (2010). Ecological Genetic Divergence of the Fungal Pathogen *Didymella rabiei* on Sympatric Wild and Domesticated *Cicer* spp. *App. Environ. Microbiol.* 76: 30-39
5. Ozkilinc, H., **Frenkel, O.**, Abbo, S., Eshed, R., Sherman, A., Shtienberg, D., Ophir, R. and Can, C. (2010). A comparative study of Turkish and Israeli populations of *Didymella rabiei*, the Ascochyta blight pathogen of chickpea. *Plant Pathol.* 59: 492-503.
6. **Frenkel, O.**, Yermiyahu, U., Forbes, GA., Fry, WE. and Shtienberg, D. (2010). Boron induces systemic acquired resistance against *Phytophthora infestans*. *Plant Pathol.* 59: 626-633.
7. **Frenkel, O.**, Brewer, MT. and Milgroom, MG. (2010). Variation in aggressiveness of *Erysiphe necator* from different *Vitis* species and geographic origins in the eastern United States. *Phytopathology* 100: 1185-1193.
8. Spanu, PD., Abbott, JC., Burgis, TA., Ahmadinejad, N., Ametz, C., Amselem, J., Barton, GR., Benjdia, M., Bidzinski, P., Bindschedler, LV., Both, M., Brewer, MT., Brown, JKM., Butcher, SA., Cadle-Davidson, L., Cadle-Davidson, M., Collemare, J., Cramer, R., Fransisco, LR., **Frenkel, O.**, Godfrey, D., Gurr, SJ., Harriman, J., Hoede, C., King, BC., Klages, S., Kleemann, J., Knoll, D., Koti, PS., Kreplak, J., Lebrun, MH., Lu, X., Maekawa, T., Mahanil, S., Milgroom, MG., Montana, G., Noir, S., O'Connell, RJ., Oberhänsli, S., Parlange, F., Pedersen, C., Quesneville, H., Reinhardt, R., Ridout, CJ., Rott, M., Sacristán, S., Schmidt, SM., Schön, M., Schulze-Lefert, P., Skamnioti, P., Soanes, DM., Sommer, H., Stüber, K., Takahara, H., Talbot, NJ., Thordal-Christensen, H., van Themaat, AL., Vigouroux, M., Weßling, R., Wicker, T. and Panstruga, R. (2010). Genome expansion and gene loss in powdery mildew fungi reveal functional tradeoffs in extreme parasitism. *Science* 330: 1543-1546.
9. **Frenkel, O.**, Portillo, I., Brewer, MT., Peros, JP., Cadle-Davidson, L. and Milgroom, MG. (2011). Development of microsatellite markers from the transcriptome of *Erysiphe necator* for analyzing population structure in North America and Europe. *Plant Pathol.* 61:106-119.
10. Ozkilinc, H., **Frenkel, O.**, Shtienberg, D., Abbo, S., Sherman, A., Kahraman, A. and Can, C. (2011). Aggressiveness of eight *Didymella rabiei* isolates from domesticated and wild chickpea native to Turkey and Israel, a case study. *Eur. J. Plant Pathol.* 131:529-537.
11. Ramming, DW., Gabler, F., Smilanick, JL., Margosan, DA., Cadle Davidson, M., Barba, P., Mahanil, S., **Frenkel, O.**, Milgroom, MG. and Cadle-Davidson, L. (2012). Identification of race specific resistance in North American *Vitis* spp. limiting *Erysiphe necator* hyphal growth. *Phytopathology* 102: 83-93.
12. Brewer, MT., **Frenkel, O.** and Milgroom, MG. (2012). Linkage disequilibrium and spatial aggregation of genotypes in sexually reproducing populations of *Erysiphe necator*. *Phytopathology* 102: 997-1005.

13. Jaiswal, AK., Elad, Y., Graber, ER. and **Frenkel, O.** (2014). *Rhizoctonia solani* suppression and plant growth promotion in cucumber as affected by biochar pyrolysis temperature, feedstock and concentration. *Soil Biol. Biochem.* 69: 110-118.
14. Sharabani, G., Manulis-Sasson, S., Chalupowitz, L., Borenstein, M., Shulhani, R., Lofthaus, M., Sofer, M., **Frenkel, O.**, Dror, O. and Shtienberg, D. (2014). Temperature at early stages of *Clavibacter michiganensis* subsp. *michiganensis* infection affects bacterial canker development and virulence-gene expression *Plant Pathol.* 63: 1119-1129.
15. Kolton, M., **Frenkel, O.**, Elad, Y. and Cytrin, E. (2014). Potential role of flavobacterial gliding-motility/type IX secretion system complex in root colonization and plant defense. *MPMI* 27: 1005-1013.
16. **Frenkel, O.**, Cadle-Davidson, L<sup>\*</sup>, Wilcox, W.F. and Milgroom, M.G. (2015). Mechanisms of resistance to an azole fungicide in the grapevine powdery mildew, *Erysiphe necator*. *Phytopathology* 105: 370-377.
17. Jaiswal, AK., **Frenkel, O.**, Lew, B., Graber, E.R. and Elad, Y. (2015). Non-monotonic influence of biochar dose on bean seedling growth and susceptibility to *Rhizoctonia solani*: The Shifted R<sub>max</sub>-Effect. *Plant and Soil*: 395:125-140.
18. Gur, Y. and **Frenkel, O.** (2015). First report of Leaf spot on blue lupin (*Lupinus pilosus*) caused by *Pleiochaeta setosa*. *Plant disease*: In Press; [doi.org/10.1094/PDIS-05-15-0558-PDN](https://doi.org/10.1094/PDIS-05-15-0558-PDN)
19. **Frenkel, O.**, Bornestein, M., Shulhani, R., Sharabani, G., Sofer, M., Abu-Moch, F., Lofthaus, M., Manulis-Sasson, S. and Shtienberg, D. (2016). Secondary spread of *Clavibacter michiganensis* subsp. *michiganensis* in nurseries and the conditions leading to infection of tomato seedlings. *Eur. J. Plant Pathol.*: 144:569-579.
20. Golani, M., Abbo, S., Sherman, A., **Frenkel, O.** and Shtienberg, D. (2016). The temperature response and aggressiveness of *Peyronellaea pinodes* isolates originating from wild and domesticated Pisum sp. in Israel. *Phytopathology*: In Press, [doi.org/10.1094/PHYTO-11-15-0306-R](https://doi.org/10.1094/PHYTO-11-15-0306-R).
21. Golani, M., **Frenkel, O.**, Borenstein, M., Shulhani, R., Abbo, S. and Shtienberg, D. (2016). Prevalence, development and significance of ascochyta blight caused by *Didymella pinodes* in *Pisum elatius* populations growing in natural ecosystems. *Phytopathology*: In Press, [doi.org/10.1094/PHYTO-02-16-0064-R](https://doi.org/10.1094/PHYTO-02-16-0064-R)

## 2. Books and Invited Reviews

1. Abbo, S., **Frenkel, O.**, Sherman, A. and Shtienberg, D. (2007). The sympatric Ascochyta pathosystems of near eastern legumes, a key for better understanding of pathogen biology. *Eur. J. Plant Pathol.* 119: 111-118. IF 1.413. Category: Plant Science; Rank 94/190.
2. Graber, E.R., **Frenkel, O.**, Jaiswal, A.K<sup>S</sup>. and Elad, Y. (2014). How may biochar influence severity of diseases caused by soilborne pathogens? *Carbon Manage.* 5: 169-183. IF. 1.722. Category: Environmental Science; Rank 105/216.

### **3. Articles in Non-Reviewed Journals in Hebrew and English**

1. **Frenkel, O.**, Yermiah, U and Shtienberg, D. (2002). The influence of Boron in treated water on the development of Early Blight and Late Blight in tomatoes and potatoes. Water and irrigation (Hebrew) 488: 22-29.
2. Dombrovsky, A., **Frenkel, O.**, Cohen, R., Kanitzky-Goldstein, R., Gamliel, A and Aharon, E. (2015). CGMMV initiative: Management for controlling CGMMV damage in infected plots and avoiding the dispersal to new areas, part I. Sade Vayerek (Hebrew) 280: 37-48.
3. Dombrovsky, A., **Frenkel, O.**, Cohen, R., Kanitzky-Goldstein, R., Gamliel, A and Aharon, E. (2015). CGMMV initiative: Management for controlling CGMMV damage in infected plots and avoiding the dispersal to new areas, part II. Sade Vayerek (Hebrew) 281: 32-38.
4. **Frenkel, O.**, Shulhani, R., Bornstein, M., Sharabani, G., Abu-Moch, F., Manulis-Sasson, S., Shtienberg, D., Sofer, M., and Lofthaus, M (2015). Development of bacterial canker epidemic in the nurseries. Sade Vayerek (Hebrew) 282: 40-46.

### **4. Articles in Symposia Proceedings**

- 1 **Frenkel, O.**, Shtienberg, D. and Yermiyahu, U. (2002). Using the Cornell late blight simulator to test biological questions: a case study on the influence of the source of irrigation water on *Phytophthora infestans* development. In: Late Blight: Managing The Global Threat. Proceedings Of The Global Initiative On Late Blight Conference. (Lizárraga, C., ed). pp. 71-76. International Potato Center.
- 2 Kolton, M., **Frenkel, O.**, Elad, Y. and Cytrin, E. (2012). Potential role of flavobacterial Por secretion system (PorSS) in root colonization and plant defense system stimulation. In: 3rd Flavobacterium conference. Turku, Finland, <http://web.abo.fi/konferens/flavobacterium2012/pdf/Kolton.pdf>
- 3 Shtienberg, D., Sharabani, G., Bornstein, M., Shulhani, R., **Frenkel, O.**, Manulis-Sasson, S., Lofthaus, M. and Sofer, M., (2012). Management of bacterial canker of tomatoes: an attainable goal. In: IV International Symposium on Tomato Diseases ISHS Acta Horticulturae 1069. pp. 151-159.