Name: Segula Masaphy **Date: July 2025**

Fields of Interest:

Applied Mycology: Morel mushroom (Morchella) ecology and biotechnology, Mushroom cultivation, Fungal bioactivity, Fungal biomass, Fungal-environment interactions, Fungal laccases, Fungal-bacterial interactions, Forest mycology.

CURRICULUM VITAE

1. Personal Details

Permanent Home Address: Moshav Margaliot, Upper Galilee, 12160

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2. Higher Education

Undergraduate and Graduate Studies

Period of Study	Name of Institution and Department	Degree	Year of Approval of Degree
1991-1995	Plant Protection and Microbiology Department, Faculty of Agriculture, The Hebrew University of Jerusalem, and MIGAL Research Institute in Kiryat Shmona.	**Ph.D.,**	1996
1984-1986	Plant Protection and Microbiology Department, Faculty of Agriculture, The Hebrew University of Jerusalem, and MIGAL Research Institute in Kiryat Shmona.	**M.Sc.,**	1987
1978-1981	Microbiology and Plant Protection Division, Faculty of Agriculture, The Hebrew University of Jerusalem	**B.Sc.,**	1982
1996-1997	Dept. of Microbiology, Institute of Soil and Water, Volcani Centre. Host: Dr. Raphi Mandelbaum		1997
1998-2000	Dept. of Molecular Biology and Biotechnology, University of Sheffield, and Institute of Biological Sciences, University of Wales, UK. Host: Prof. Steve Kelly.	**Post-Doctoral Studies**	2000

3. Academic Ranks and Tenure in Institutes of Higher Education

Dates	**Name of Institution and Department**	**Rank/Position**
2024, January	Department of Food Sciences, Tel Hai College	Full professor
2015 up to date	Department of Food Sciences, Tel Hai College	Associate professor
2005- 2015	Department of Food Sciences, Tel Hai College and Applied Microbiology and Mycology Lab at MIGAL Research Institute in Kiryat Shmona.	Senior Lecturer
2000-2005	Department of Food Sciences, Tel Hai College and Applied Microbiology and Mycology Lab at MIGAL Research Institute in Kiryat Shmona.	Lecturer

4. Teaching

Name of Course	**Type of Course, Lecture/Seminar/ Workshop/High Learn Course/ Introduction Course (Mandatory)**	**Degree**
Fungal Biotechnology	Tel-Hai College. **Lecture**	M.Sc. Program.
General Microbiology.	Tel-Hai College**. Mandatory** Lecture.	Undergraduate
Practical Course: Environmental Biotechnology.	Tel-Hai College**. Mandatory** Practical.	Undergraduate
Environmental Biotechnology.	Tel-Hai College, **Mandatory.** Lecture.	Undergraduate
Seminar in Biotechnology.	Tel-Hai College. **Mandatory**. Seminar	Undergraduate
Seminar in Food Science.	Tel-Hai College. **Mandatory**. Seminar	Undergraduate
Practical Course: Water Microbiology	Tel-Hai College. **Practical**	M.Sc. program.

5. Editorial Activities

Year	
2025	**Guest co-editor,** Journal of Fungi**,** Special issue: **"**Advances in Mushroom Bioactive Metabolites**".**
2022	**Guest co-editor**, Frontiers in Microbiology. Special issue: "Morels: Physiology, Genetics, and Interactions with the Environment"

2022	**Guest editor,** Journal of Fungi. Special issue: "Biological Activity of Fungi: Interaction with the Environment".
2020- to 2022	*BARD proposal reviewer's panel
2009	Reviewer of the book "Karta Guide: Edible and Poisonous Mushrooms of Israel" by D. Lewinson, Karta Publishers
2009	Guest co-editor of a special issue "Mushroom Ecology and Cultivation in Israel". Israel Journal of Plant Sciences. August 2009. Co- editor- D. Lewinson.
Reviewer of manuscripts:	**Journals:** Applied Environmental Microbiology, including: Applied Microbiology Biotechnology; Chemosphere; Current Microbiology; Plos one; Journal of Fungi; Molecules; Scientific Reports; Geomicrobiology; J. Agronomy; Agriculture Food Research; Current Nutrition and Food Sciences; Water Soil Air; Environmental Science and Pollution Research; Food Bioprocess Technology; Forests; International Journal of Molecule Science; CyTA-Journal of Food; Food Bioscience; Peer J; Microorganisms; Molecules; Journal of Fungi, and others,

6. List of publications

A. **Ph.D. Dissertation:** Biodegradation of atrazine by the lignocellulolytic fungus *Pleurotus pulmonarius* .1996. Hebrew. The Hebrew University. Supervisors: Prof. Yigal Henis (Faculty of Agriculture) and Prof. Dan Levanon (MIGAL).

B. Articles in Refereed Journals

1. Ezra R., Vanti G. & **Masaphy S. (**2025). Sustainable, targeted, and cost-effective laccase-based bioremediation technologies for antibiotic residues in the ecosystem: a comprehensive review. *Biomolecule*.

2. **Masaphy, S.,** Bonito, G., Orlofsky, E., Van Wyk, J., Lemmond, B., Healy, R., ... & Zabari, L. (2025). Pezizales in Israel: Molecular Phylogenetic and δ13Cδ15N Stable Isotope Data Reveal New Records and Potential Discrepancies in Their Trophic Ecology. *Journal of Fungi*, *11*(6), 414.

3. **Masaphy S.,** Levi N., Zabari L., and Orlofsky E. 2024. Effect of *Pinus halepensis* trees thinning in Kdoshin forest on soil fungal biodiversity. Yaar, 24, 35-42 (Hebrew)

4. Tan H., Du XH., Bonito G. and **Masaphy S.** (2024). Morels: physiology, genetics and interaction with the environment. Frontier Microbiology, 14,1352719.

5. Roshrosh, H., Rohana, H., Azrad, M., Leshem, T., **Masaphy, S.,** & Peretz, A. (2023). Impact of Helicobacter pylori virulence markers on clinical outcomes in adult populations. *World Journal of Gastroenterology*, *29*(1), 190.

6. Kurjogi, M., **Masaphy, S**., Kaulgud, R. S., Teradal, N., & Vanti, G. (2023). Sustainable biopolymer coupled silver nanoparticles synthesis, characterization and their efficacy in wound healing.

7. **Masaphy S**. 2022. *Purpureocillium lilacinum* infection of indoor cultivated morel primordia. Agriculture, 12: 5**.**

8. **Masaphy, S.,** Vanti, G. L., & Zabari, L. 2022. Laccase enhancement and antifungal toxicity reduction: Bidirectional influences between Pomegranates peel extract and *Morchella conica* mycelium activity. Bioresource Technology Reports 17:100936.

9. Tietel, Z., & **Masaphy, S.** 2021. Chemotyping of three Morchella species reveals species-and age-related aroma volatile biomarkers. LWT:112587

10. Orlofsky, E., Zabari, L., Bonito, G., & **Masaphy, S.** 2021. Changes in soil bacteria functional ecology associated with *Morchella rufobrunnea* fruiting in a natural habitat. Environmental Microbiology 23:6651-6662.

11. Vanti. G., Leshem Y and **Masaphy S.,** 2020. Resistance response enhancement and reduction of *Botrytis cinerea* infection in strawberry fruit by *Morchella conica* mycelial extract. Postharvest Biology and Technology.175: 111470.

12. Vanti, G.L., Kurjogi, M., Basavesha, K. N., Teradal, N. L., **Masaphy, S**., & Nargund, V. B. 2020. Synthesis and antibacterial activity of *solanum torvum* mediated silver nanoparticle against *Xanthomonas axonopodis* pv. punicae and *Ralstonia solanacearum*. Journal of Biotechnology 309: 20-28.

13. Vanti G, **Masaphy S**., Chakrasali S., Kurjogi M., Nargund V. 2019. Synthesis and application of chitosan-copper nanoparticles on damping off causing plant pathogenic fungi. International Journal of Biological Macromolecules, 156: 1387-1395.

14. Olshansky, Y., **Masaphy, S.,** Root, R. A., & Rytwo, G. 2018. Immobilization of *Rhus vernicifera* laccase on sepiolite; effect of chitosan and copper modification on laccase adsorption and activity. Applied Clay Science, 152, 143-147.

15. Peretz A., Zabari L., Pastukh N., Avital N. and Masaphy S. 2018. In vitro antileishmanial activity of a black morel: *Morchella importuna*. International Journal of Medicinal Mushroom. 20:71-80.

16. Tietel Z. and Masaphy S. 2017. Aroma-volatile profile of black morel (*Morchella importun*a) grown in Israel. Journal of Science of Food and Agriculture. 98: 346-353.

17. Tietel Z. and **Masaphy S**. 2017. True Morels (Morchella) – Nutritional and Phytochemical Composition, Health Benefits and Flavor: a review. Critical Reviews in Food Science and Nutrition. 11: 1888-1901.

18. **Masaphy S**. and Ezra R. 2016. Targeted inspection of environmental mycological load for mitigation of indoor mold toward improved public health. Journal of Microbial & Biochemical Technology. 8: 449-458.

19. **Masaphy S.** 2014. A novel echinocandin MIG0310 with anticandida activity from newly isolated Fusarium sp. strain MS-R1. Journal of Applied Microbiology. 116: 1458-1464.

20. **Masaphy S**., Lavi I. Sultz S. and Zabari L. 2014. Laboratory study of fungal bioreceptivity of different fractions of composite flooring tiles showing efflorescence. Applied Microbiology Biotechnology. 98:5251-5260.

21. **Masaphy, S**., Zohar, S. and Shagug, G. 2014. Biodegradation of *p*-nitrophenol sorbed onto crystal violet-modified organoclay by *Arthrobacter* sp. 4Hβ. Applied Microbiology Biotechnology. 98:1321-1327.

22. **Masaphy, S**., and Zabari, L. 2013. Observations on post-fire black morel ascocarp development in an Israeli burnt forest site and their preferred micro-sites. Fungal Ecology. 46:316–318.

23. Zohar, S., Kviatkovski, I. and **Masaphy, S.** 2013. Increasing tolerance to and degradation of high p-nitrophenol concentrations by inoculum size manipulations of Arthrobacter 4Hβ isolated from agricultural soil. International Biodeterioration Biodegradation. 84:80-85.

24. Kagan-Zur, V., Turgeman, T., Sitrit, Y., Danai, O., Luzzati, Y., Bustan, A., Roth-Bejerano, N. and **Masaphy, S.** 2012. Introduced *Tuber aestivum* spreading spontaneously in Israel. Acta Mycologia. 47: 175-177.

25. Turgeman, T., Sitrit, Y., Danai, O., Luzzati, Y., Bustan, A., Roth-Bejerano, N., Kagan-Zur, V. and **Masaphy, S**. 2012. Introduced Tuber aestivum replacing introduced *Tuber melanosporum*. A case study. Agroforestry Systems. 84:337-343**.**

26. Glazer, I., Masaphy, S., Bar-Ilan, I., Holland, D., Kerem, Z. and Amir, R. 2012. Partial identification of bioactive compounds having antifungal activities from *Punica granatum*. Journal Agricultural Food Chemistry 60:4841-4848.

27. Jander-Shagug, G. and **Masaphy, S.** 2010. Free radical scavenging activity in Morchella conica and *Morchella esculenta* mushrooms: relation to color and phenol contents. International Journal Medicinal Mushroom 12:299-307.

28. **Masaphy, S**. 2010. Biotechnology of morel mushrooms: successful fruiting body formation and development in a soilless system. Biotechnology. Letter 32:1523-1527.

29. Masaphy, S., Zabari, L., Goldberg, D. and Jander-Shagug, G. 2010. The complexity of Morchella systematics: a case of yellow morel from Israel. Fungi 3:14-18.

30. Albaum, S., & **Masaphy, S**. 2009. Comparison of rose bengal-chloramphenicol and modified aureomycin-rose bengal-glucose-peptone agar as media for the enumeration of molds and yeasts in water by membrane filtration techniques. Journal of Microbiological Methods, 76(3), 310-312.

31. **Masaphy, S.,** Zabari, L., Pastrana, J. and Dultz, S. 2009. Role of fungal mycelium in the formation of carbonate concretions in growing media—an investigation by SEM and synchrotron-based X-ray-tomographic microscopy. Geomicrobiology Journal 26:442-450.

32. **Masaphy, S.,** Zabari, L. and Gander-Shagug, G. 2009. *Morchella conica* proliferation in post-fire forests following forest management activities in northern Israel. Israel Journal Plant Science 56:315-319.

33. Danai, O., Ezov, N., Levanon, D. and **Masaphy, S**. 2009. Introduction of new exotic mushroom species into cultivation in Israel. Israel Journal Plant Science 56:295-301.

34. **Masaphy, S.,** Zabari, L. and Goldberg, D. 2009. New long season ecotype of *Morchella rufobrunnea* from Northern Israel. Mycologia Aplicada 21:45-55.

35. **Masaphy, S**. 2005. External ultrastructure of fruit body initiation of Morchella spp. Mycological Research (continued as Fungal Biology) 109:508-512.

36. **Masaphy, S.** 2004. Effect of CaCO3 on Morchella growth and sclerotia formation. Mushroom Science 16: 111-115.

37. Lamb, D.C., Kelly, D.E., **Masaphy, S.,** Jones, G.L. and Kelly, S.L. 2000. Engineering of heterologous cytochrome P450 in Acinetobacter sp.: application for pollutant degradation. Biochemistry Biophysics Research Communications 276:797-802.

38. **Masaphy, S**., Lamb, D.C. and Kelly, S.L. 1999. Purification and characterization of benzo(a)pyrene hydroxylase from *Pleurotus pulmonarius*. Biochemistry Biophysics Research Communications 266:326-9.

39. Lamb, D.C., **Masaphy, S**., Kelly, D.E., Geber, A., Bennett, J.E. and Kelly, S.L. 1999. Purification, reconstitution and inhibition of sterol (22 desaturase (P45061); CYP61) from the pathogenic fungus *Candida glabrata*. Antimicrobial Agents Chemotherapy 43:1725-1728.

40. **Masaphy, S.,** Krinfeld, B. and Levanon, D. 1998. Induction of linoleic acid supported benzo(a) pyrene hydroxylase activity by manganese in the white-rot fungus *Pleurotus pulmonarius*. Chemosphere 36:2933-2940.

41. **Masaphy, S.,** Henis, Y. and Levanon, D. 1997. In-vitro N-de-ethylation of atrazine by cell-free extract of *Pleurotus pulmonarius* is induced by Mn. Biotechnology Letter.19:861-864.

42. **Masaphy, S**. and Mandelbaum, R. 1997. Atrazine mineralization in slurries from soils irrigated with treated wastewater. Applied Soil Ecology 6:281-291.

43. **Masaphy, S.,** Henis, Y. and Levanon, D. 1996. Manganese-enhanced biotransformation of atrazine by the white rot fungus *Pleurotus pulmonarius* and its correlation with oxidation activity. Applies. Environmental Microbiology 62:3587-3593.

44. **Masaphy, S**., Fahima, T., Levanon, D., Henis, Y. and Mingelgrin, U. 1996. Parathion degradation by Xanthomonas sp. and its crude enzyme extract in clay suspensions. Journal Environmental Quality 25:1248-1255.

45. **Masaphy, S**., Levanon, D. and Henis, Y. 1996. Degradation of atrazine by the lignocellulolytic fungus *Pleurotus pulmonarius* during solid-state fermentation. Bioresource Technology 56:207-214.

46. **Masaphy, S.,** Levanon, D., Henis, Y., Venkateswarlu, K. and Kelly, S.L. 1996. Evidence for cytochrome P450 and P450 mediated benzo(a)pyrene hydroxylation in the white rot fungus *Phanerochaete chrysosporium.* FEMS Letter 135:51-55.

47. **Masaphy, S.,** Levanon, D., Henis, Y., Venkateswarlu, K. and Kelly, S.L. 1995. Microsomal and cytosolic cytochrome P450 mediated benzo(a)pyrene hydroxylation activity in *Pleurotus pulmonarius*. Biotechnology Letter 17:969-974.

48. Belinki, P., **Masaphy, S**., Levanon, D., Hadar, Y. and Dosoretz, C. 1994. Effect of medium composition on 1-octen-3-ol formation in submerged culture of *Pleurotus pulmonarius.* Applied Microbiology Biotechnology 40:629-633.

49. **Masaphy, S.,** Levanon, D., Vaya, J. and Henis, Y. 1993. Isolation and characterization of a novel atrazine metabolite produced by the fungus *Pleurotus pulmonarius*, 2-chloro-4-ethylamino-6-(1-hydroxyisopropyl)-amino-1,3,5 triazine. Applied Environmental Microbiology 59:4342-4346.

50. Levanon, D., Rothschild, N., Danai, O. and **Masaphy, S**. 1993. Strain selection for cultivation of shiitake mushroom (*Lentinus edodes*) on straw. Bioresource Technology 45:9-12.

51. Levanon, D., Rothschild, N., Danai, O. and **Masaphy, S**. 1993. Bulk treatment of substrate for the cultivation of Shiitake mushroom (*Lentinus edodes*) on straw. Bioresource Technology 45:63-64.

52. Masaphy, S. and Levanon, D. 1992. The effect of lignocellulose on lignocellulolytic activity of *Pleurotus pulmonarius* in submerged culture. Applied Microbiology Biotechnology 36:828-832.

53. Marchaim, U., Levanon, D., Danai, O., **Masaphy, S.,** Chen, Y., Inbar, Y. and Klinger, I. 1991. A suggested solution for slaughterhouse wastes: use of the residual materials after anaerobic digestion. Bioresource Technology 37:127-134.

54. Masaphy, S., Levanon, D., Danai, O. and Henis, Y. 1989. Nutritional supplementation to the casing soil: ecological aspects and mushroom production. Mushroom Science. 12:417-426**.**

55. Levanon, D., **Masaphy, S**. and Danai, O. 1988. Nutritional and ecological aspects of the use of organic wastes for mushroom casing. Mushroom Information 5:13-14.

56. Levanon, D., Danai, O. and **Masaphy, S.** 1988. Chemical and physical parameters in recycling organic wastes for mushroom production. Biological Wastes 26:341-348. (Re-named Bioresource Technology).

57. Masaphy, S., Levanon, D., Tchelet, R. and Henis, Y. 1987. Scanning electron microscope studies of interaction between *Agaricus bisporus (*Lang) Sing hyphae and bacteria in casing soil. Applied Environmental Microbiology. 53:1132-1137**.**

D. <u>Articles or Chapters in Scientific Books</u>

1) Shaltiel-Harpaz L., **Masaphy S**., Tsror L., Palevsky E. **2016**. Biorational, Environmentally Safe Methods for the Control of Soil Pathogens and Pests in Israel. In" Agriculturally Important Microorganisms." Harikesh Bahadur Singh et al. (Eds). Pages 273-291.
2) **Masaphy**, S. 2012. Development of media for growth and enumeration of fungi from water. In: Laboratory Protocols in Fungal Biology: Current Methods in Fungal Biology (V.K. Gupta, M. Tuohy, M. Ayyacham, K. Turner, and A. O'Donovan (eds.). Springer

Publication, pp. 201-209

3) **Masaphy,** S., Henis, Y. and Levanon, D. 1999. Physiological and biochemical aspects of chloro-s-triazines fungal biotransformation. Advance Research Microbiology Series 3:161-173
4) Levanon, D., Danai, O. and **Masaphy**, S. 1993. Aspects of selecting organic wastes as substrates for edible fungi. In: Mushroom Production and Research (M. Zjalic, ed.). FAO REUR Technical Series 23, pp. 109-119 .

E. Articles in Conference Proceedings

1) Levanon, D., **Masaphy, S.,** Belinki, P. and Danai, O. 1991. Lignocellulolyitic activity of Pleurotus pulmonarius in liquid culture. Preceding Annual Meeting American Society Microbiology. Dallas, TX, USA. May, 5-9.
2) **Masaphy,** S., Zabari, L. and Gander, G. 2007. Fruiting of morel in Israel. Proc. Int. Conf. Mushroom Biology Biotechnology (ICMBB-2007), Solan, India, 10-11 Feb 2007.
3) **Masaphy**, S. 2011. Diversity of fruiting patterns of wild black morel mushroom. Proc. 7th Int. Conf. Mushroom Biology Mushroom Products. Arcachon, France, October 2011.

F. Other Scientific Publications

Published articles in collections or non-refereed journals.

1) **Masaphy S**. 2014. Fungi. In Biodiversity Chapter. Israel project "Biodiversity in the Context of Ecosystem Services in Israel". HaMAARAG-Israel's National Ecosystem Assessment Program. Under the auspices of the Israel Academy of Sciences and Humanities.
2) **Masaphy, S**. and Mandelbaum, R.T. 1997. The effect of prolonged irrigation with low quality effluents on microbial activity and degradation of pesticides. Water and Irrigation 368:39-45 (in Hebrew)
3) Levanon, D., Danay O., and **Masaphy S.** 1993. Aspects of selecting organic wastes as substrates for edible fungi. *REUR Technical Series*.