**Name: Yoram Gerchman** **Date: Jan. 2026**

# CURRICULUM VITAE

## 1. Personal Details

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## 2. Higher Education

### A. Undergraduate and Graduate Studies

| Period of Study | Name of Institution and Department | Degree | Year of Approval of Degree |
|---|---|---|---|
| 1993-2000 | Hebrew University | Ph.D. (Awarded *summa cum laude*) | 10.2000 |
| 1990-1992 | Hebrew University | M.Sc. | 10.1992 |
| 1987-1990 | Hebrew University | B.Sc. | 10.1990 |

### B. Post-Doctoral Studies

| Period of Study | Name of Institution, Department and Host | Degree | Year of Completion |
|---|---|---|---|
| 2003-2005 | Princeton University, Department of Electrical Engineering with Prof. Ron Weiss | Research associate | 2005 |
| 2000-2002 | Princeton University, Chemistry Department and Rutgers University Marine and Costal Science; With Prof. Charles G. Dismukes (Princeton) and Prof. Paul A. Falkowski (Rutgers) | Post-doctorate | 2002 |

## 3. Academic Ranks and Tenure in Institutes of Higher Education

| Dates | Name of Institution and Department | Rank/Position |
|---|---|---|
| 2023- Present | Oranim Academic College of Education | Full Professor (with Tenure) |
| 2019- 2023 | Oranim Academic College of Education | Associate Professor (with Tenure) |
| 2016-Present | University of Haifa | Adjunct Researcher |
| 2016-2019 | Oranim Academic College of Education | Senior Lecturer (with Tenure) |
| 2014-2016 | University of Haifa, Faculty of Natural Sciences, Dep. of Biology and Environment | Adjunct Senior Lecturer (Specialist) |
| 2007-2014 | University of Haifa, Faculty of Natural Sciences, Dep. of Biology and Environment | Lecturer |
| 2005-2007 | University of Haifa, Faculty of Natural Sciences, Dep. of Biology and Environment | Lecturer (proposed) |

## 4. Offices in Academic Administration

| Years | Name of Institution and Department | Role |
|---|---|---|
| 2025-Present | Oranim Academic College of Education | Head of Oranim College Science Division |
| 2022-Present | Oranim Academic College of Education | Head of M.Ed. program in Science Education |
| 2021-Present | Oranim Academic College of Education | Head of Oranim college STEAM teacher program (in preparation) |
| 2020-Present | Oranim Academic College of Education | Academic adviser to Oranim College Science for Youth program |
| 2008-Present | Oranim Academic College of Education | Member of the Green Council |
| 2010-2015 | University of Haifa, Biology | In charge of departmental seminars |
| 2007-2010 | University of Haifa, Biology | Member of building committee |
| 2006-2008 | Oranim Academic College of Education | Head of the Green Council |

## 5. Scholarly Positions and Activities outside the Institution

| Years | Activity |
|---|---|
| 2021-Present | University of Haifa academic manager for Israel Energy Community |
| 2019-2024 | Israeli representative in COST Action CA18229 - **Yeast4Bio**: Non-Conventional Yeasts for the Production of Bioproducts |

| Years | Memberships in Academic Professional Associations |
|---|---|
| 2019-Present | International UV Association (IUVA) |
| 2011-Present | Israeli Society of Ecology and Environmental Sciences |
| 2011-Present | Israeli Society for Biotechnology Engineering |
| 2010-Present | Israeli Society for Microbiology |
| 2006-Present | BASHAAR – Academic community for Israeli Society |
| 2017-2020 | Society for Applied Microbiology |
| 2012 and 2020 | Israeli Society for Zoology |
| 2010-2012 | Israeli Society for Entomology |

| Years | Editorial Assignments |
|---|---|
| 2022-Present | Frontiers in Chemical Engineering - Environmental Chemical Engineering - Review Editor |
| 2021-Present | Water journal - Academic topics Board Editor, Wastewater Treatment and Reuse, (Q1) |
| 2011-Present | Member of the *Journal of Molecular Engineering and Systems Biology* editorial board |
| 2004-2015 | Member of the *Synthetic and Systems Biology* editorial board |

| Years | Reviewing for Refereed Journal (IF; Quarterly) |
|---|---|
| 2022 - Present | Environmental Technology & Innovation (7.76; Q1**)** |
| 2022 - Present | Light: Science & Applications (20.26; Q1) |
| 2021- Present | Biomass Conversion and Biorefinery (4.99; Q1) |
| 2021- Present | International Journal of Biological Macromolecules (6.95; Q1) |
| 2021-Present | Industrial Crops and products (5.65; Q1) |
| 2021- Present | JoVE - Journal of Visualized Experiments (1.36; Q2) |
| 2020-Present | RSC Advances (3.36; Q1) |
| 2020-Present | Heliyon (2.85; Q1) |
| 2020-Present | Cellulose (5.04; Q1) |
| 2019-Present | Carbohydrate polymers (IF 9.38; Q1) |
| 2019-Present | Bioresource Technology (IF 9.64; Q1) |
| 2017-Present | Chemosphere (7.09; Q1) |
| 2017-Present | Water (3.1; Q1) |
| 2016-Present | Basic and Applied Ecology (3.41; Q1) |
| 2015-Present | International Biodeterioration & Biodegradation (4.32; Q1) |

| | |
|---|---|
| 2012-Present | Phytochemistry (4.07; Q1) |
| 2011-Present | European Journal of Phycology (Q1) |
| 2015 | DNA and Cell Biology (3.31; Q2) |
| 2014 | Entomologia Experimentalis et Applicata (1.3; Q1) |

| **Years** | **Reviewing for Fund Agencies** |
|---|---|
| 2023 | Ministry of Agriculture |
| 2016 and 2020 | German-Israeli Foundation for Scientific Research (GIF) |
| 2008 | Ministry of Science and Technology |

| **Years** | **Reviewing of courses** |
|---|---|
| 2008 | Open University |
| 2008 | University of Haifa |

| **Years** | **Thesis reviews** |
|---|---|
| 2008-Present | Review of M.Sc. and Ph.D. thesis – Tel Aviv University, Bar Ilan University, Ben Gurion University, Hebrew University, Technion, University of Haifa, Tel Hai College. |

| **Years** | **Activity in the community** |
|---|---|
| 2023 | Mentoring youth international group in Sustainergy 7, Eilat-Eilot founded International Youth Hackathon on Hydrogen based energy |
| 2023 | Mentoring a group of middle school students from Haifa in submission to UN SDG competition |
| 2023 | Mentoring a group of middle school students from Dimona in Lego®-FIRST ENERGIZE challenge |
| 2023 | Guiding high school students in BioHeker in Biology (a research project as part of the standard exam) |
| 2022 | Member of the IUVA task force “Is UV-resistance evolution a problem?” |
| 2022 | Leading the University of Haifa Energy Forum |
| 2022 | Mentoring in the Renewable Energy Hackathon, Technion, Israel |
| 2021 | Taking part in hackathon “WATERTHON” – Project – Rapid detection of waterborne pathogens |
| 2021 | Member of governing council of EcoScience Israel, community-based organization for supporting environmental policy and education |

| | |
|---|---|
| 2021 | Popular public lecture – Renewable energy, not just solar panels |
| 2021 | Taking part in hackathon “The North Innovation Challenge” – Project – Minimizing agarose wastes |
| 2020 | Lecture to Clalit nurses – “Old disease and New disease” |
| 2020 | Supporting high school students in the Ramon Space Foundation project – Development of protein aggregates under microgravity conditions |
| 2019 | Taking part in hackathon “Dealing with antibiotic resistance bacteria” – Project: Dealing with transfer of resistance bacteria through air circulating systems |
| 2019 - Present | Member of governing council of TiME (This is My Earth) – Israel, an NGO dedicated to preserving biodiversity |
| 2014-Present | Support the Science-Technology study group, Ort Grinberg Tivon |
| 2014- Present | Organizing the Israeli National Science day in Oranim campus |
| 2014- Present | Organizing EU Researcher Night in Oranim campus |
| 2014-Present | Guiding high school student in a Scientific and Engineering project |
| 2011-Present | Member of Beshaar (“בשער”) – Answering science teachers and students questions online |
| 2013-2019 | Guiding high school students in Avodat Gemer in Biology |
| 2014 - 2015 | 60 years conference of the Society for the Protection of Nature in Israel - Organizing and guiding a tour of the Biomimicry trail. |
| 2014, 2016, 2018 | Served as a judge in Ort Grinberg Tivon Science and Engineering competition |
| 2014, 2015,2018 | Guiding high school student in Avodat Gemer in Biology |
| 2013 | Lecture in Rotary club, Tivon, Israel – Waste water treatment in small rural communities. |
| 2012 - 2015 | Mentoring high school students in Physics in Medicine program in Oranim campus |
| 2011-2012 | Guiding high school student in Physics – Hair whitening – Establishing the effect of the sun radiation on melanin (final grade 96); The effect of UVC, UVA and microwave radiation (2.8cm) on bacteria (final grade 95) |
| 2004-2005 | Mentoring a high school student Scientific/exploratory project – "The effect of car emission on bacteria"; via MentorPower, NJ, USA (2004-2005). |
| 2004-2005 | Coordinator of the mentoring plan of the "Mercer County Science and Engineering club", arranging for the mentoring of middle and high school students taking part at the fair |
| 2003-2005 | Serve as a Judge in the "Mercer County Science and Engineering Fair" |

**6. Participation in Scholarly Conferences**

**a. Active Participation - International**

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| Oct. 2025 | Society for Vector Ecology Conference | Chania, Crete, Greece. | Behavioral responses of native *Culex* species to chemical cues from the invasive *Aedes albopictus* (Silberbush A., Cohen S.#, Inbar M., **Gerchman Y.)** | |
| Sep. 2025 | 4th International Conference on Sustainable Chemical and Environmental Engineering | Thessaloniki, Greece | Conversion of sewage sludge to lipids for biofuels (Jonas-Levi A., **Gerchman Y.**, Azaizeh H.) | |
| June 2023 | International Conference on Natural Products Utilization (INCPU2023) | Varna, Bulgaria | The Glucosinolates-Myrosinase system of *Ochradenus baccatus* fruits and its use for enhanced seed dispersal | |
| Apr. 2023 | International Conference on UV LED Technologies & Applications | Berlin, Germany | Synergistic inactivation and lower recovery of bacteria by simultaneous exposure to low-pressure and UVB-LED (**Gerchman Y.**, Yaniv V., Betzalel Y., Mamane H.) | |
| Nov. 2022 | American Water Works Association WQTC22 - Water Quality Technology Conference | Cincinnati, Ohio, USA | Wavelength-dependent time–dose reciprocity and stress mechanism for UV-LED disinfection of Escherichia coli (Pousty D.#, Hofmann R., **Gerchman Y.**, Mamane H.) | |
| Nov. 2022 | Animal Behaviour Live: Annual Online Conference 2022. | On-line | Repulsion of w mosquitoes by fish-associated bacteria's signals | |
| Sep. 2022 | PhroFruits 2022 | Girona, Spain | Semiochemicals released by fish- | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| | | | associated bacteria affect mosquito oviposition and life history traits (Silberbush A., Shteindel N.[#], Notovich K., **Gerchman Y.**) | |
| Nov. 2021 | 6th Green & Sustainable Chemistry Conference | On-line | Olive mill circular economy - Production of ethanol from olive mill solid waste by microwave pretreatment and enzymatic saccharification | |
| June 2021 | 2021 IUVA World congress | On-line | Novel dual UV disinfection system - Combining LP and UV-LED for efficient and synergistic wastewater treatment | Invited lecture |
| Apr. 2021 | International Conference on UV LED Technologies & Applications | On-line | Disinfection of coronavirus by UVC LEDs: a line of defense to contain pandemics (Mamane, H., & **Gerchman, Y.)** | Invited lecture |
| | | | Effect of wavelength and intensity on *E. coli* inactivation kinetics (Pousty, D.[#], Mamane, H., & **Gerchman, Y.)** | Invited lecture |
| Feb 2021 | 2021 IUVA Asia | On-line | UV-LED *vs* Corona viruses – Wavelength effect | Invited lecture |
| | | | The optical properties of the human saliva – Implication on UV based disinfection of respiratory pathogens | Invited lecture |
| Apr. 2020 | International Conference on UV LED Technologies & Applications | Berlin | Direct and indirect surface disinfection using UV-LEDs (Mamane H. & **Gerchman Y.**) | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| Dec. 2020 | International Conference on UV Disinfection for Air and Surfaces | On-line | Direct and indirect surface disinfection using UV-LEDs | Invited lecture |
| Nov. 2020 | 1st International Electronic Conference on Microbiology session Antimicrobial Agents and Resistance | On-line | Antimicrobial activities in *Pistacia atlantica* - Aphids make a difference! | Invited lecture |
| Aug. 2020 | International Conference on Recycling and Waste Management | On-line | Production of ethanol from olive mill solid waste by microwave pretreatment and enzymatic saccharification | Invited lecture |
| Sep. 2019 | A.E.E.B : Evolutionary Biology Meeting at Marseilles | Marseilles, France | The *Salvia viridis'* "flag" – An extrafloral display with double role | |
| Sep. 2019 | European Network for Business and Industrial Applications | Budapest, Hungary | Sequential split-plot designs based on industry and research case studies (Asscher, J., Abu Tayeh, N.H.[#], & **Gerchman, Y.)** | |
| July 2019 | FEMS 2019 | Glasgow, Scotland | *Pseudomonas aeruginosa* mobbing behavior – Its coordination and risk hedging (Shteindel, N.,[#] & **Gerchman, Y.)** | |
| June. 2019 | 10th IWA International Symposium on waste management problems in agro-industries | Rhodos, Greece | Olive mill solid waste as a feedstock for bio-ethanol and bio-sorbent production (Abu Tayeh, H.N.[#], Azaizeh H., & **Gerchman, Y.)** | |
| June 2019 | ASM Microbe 2019 | San Francisco, CA. USA | Mobbing Behavior in *Pseudomonas aeruginosa* - Coordination and risk hedging (Shteindel, N.[#] & **Gerchman, Y.)** | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| June. 2019 | 7th International Conference on Sustainable Solid Waste Management | Herkalion, Crete | Production of cellulose nanocrystal from Israeli paper mill sludge by ozonation pretreatment followed by recyclable maleic acid hydrolysis (Peretz, R.,# Sterenzon, E.,# **Gerchman, Y.**, Vadivel, K.V., Luxbacher, T., & Mamane, H.) | |
| Feb. 2019 | X-zomes 2019 | Akko, Israel | The yeast COP9 signalosome complex is a positive regulator of lipid homeostasis (Israeli, R., Sinha, A., Cirigliano, A., Gihaz, S., Trabelcy, B.,## Braus, G., **Gerchman, Y**., Fishman, A., Negri, R., Rinaldi, T., & Pick, E.) | |
| Oct. 2018 | 15th International Specialized Conferences on Small Water and Wastewater Systems – IWA conference | Haifa, Israel | Making constructed wetlands more economical viable by use of sugar cane as a water treatment plant | |
| July 2018 | 7th European Bioremediation Conference (EBC-VII) and the 11th International Society for Environmental Biotechnology conference (ISEB 2018) | Chania, Crete | Sustainable use of constructed wetlands for wastewater treatment and reuse in small communities (Azaizeh, H., Sayed, F., Abou-kandil, A., & **Gerchman, Y.**) | |
| June 2018 | iWaresa2018 - IWA Regional Conference on Water Reuse and Salinity Management | Murcia, Spain | Using sugarcane as constructed wetlands plant for better economic viability | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| June 2018 | 6th International Conference on Sustainable Solid Waste Management | Naxos, Greece | Valorization olive mill solid waste to ethanol by microwave pretreatment and enzymatic saccharification | |
| Nov. 2017 | Combating Desertification and Dryland Management- Theory and Practice – DDD2017 | Shede Boker, Israel | Combining constructed wetlands with low-cost UV systems for efficient water reuse | |
| Sep. 2017 | IUVA World congress 2017 | Dubrovnik, Croatia | Studying the mechanisms of UV based water disinfection– From the bacteria point of view | Invited lecture |
| Sep. 2017 | IUVA World congress 2017 | Dubrovnik, Croatia | Novel and rapid approach to measure UV LEDs dose response curves (Mamane, H, Betzalel, Y., & **Gerchman Y.**) | |
| Sep. 2017 | Biotechnology and Bioengineering 2017 | Valencia, Spain | Production of ethanol from olive mill solid waste by microwave pretreatment and enzymatic saccharification | Invited lecture |
| Aug. 2017 | The 2nd International Conference on Latest Trends in Biotechnoogy and Biodiversity | Barcelona, Spain | Production of ethanol from olive mill solid wastes. (Azaizeh, H., Abu Tayeh, H.N.,# & **Gerchman, Y.**) | Invited lecture |
| June 2017 | The 3rd International Conference on Water Resource and Environment (WRE 2017) | Qingdao, China | Combined constructed wetland-UV systems for local small-scale waste water treatment | Invited lecture |
| June 2017 | The 5th international conference on Waste Management | Athens, Greece | Production of biochar from olive mill solid wastes for the removal of heavy metals from contaminated industrial wastewater (Azaizeh, H., | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| | | | Abdelhadi, S., Rytwo, G., **Gerchman, Y.**, & Dosoretz, C.G.) | |
| Oct. 2015 | 2nd MidEast Conference on Ultraviolet Technologies; International Ultraviolet Association | Tel Aviv | Studying the mechanisms of UV based water disinfection– From the inside | **Invited lecture** |
| Oct. 2015 | 2nd MidEast Conference on Ultraviolet Technologies; International Ultraviolet Association | Tel Aviv | Combined constructed wetland-UV system for local small-scale wastewater treatment (Kalbouneh, S., **Gerchman, Y**., Azaizeh, H., Linden, K., Tellawi, A., & Albalawneh, A.) | **Invited lecture** |
| Aug. 2015 | 18th International Plant Protection Congress | Berlin, Germany | The Use of the natural volatile compound to manage the Pear Psylla *Cacopsylla bidens* (Šulc) in commercial pear trees (Ibdah, M., Rachmany, R., Holland, D., **Gerchman, Y.**, & Shaltiel-Harpaz, L.) | |
| Oct. 2014 | Glucosinolates and Beyond: 3rd International Glucosinolates Conference | Wageninge, Netherlands | The glucosinolates-myrosinase system in *Ochradenus* baccat*us*: Ecology, biochemistry and physiology | |
| Aug. 2014 | SIP15 – 15th International Symposium on Insect-Plant Relationships | University of Neuchâtel, Switzerland | The use of resistant pear accessions as inter-stock in order to reduced susceptibility to pear psylla *Cacopsylla bidens* (Šulc) in commercial pear trees (Shaltiel-Harpaz, L., Soroker, V., **Gershman, Y.**, Mwafac, I., | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| | | | Kedoshim, H., Hativ, C., Bar Yaakov, I., Rchemani, D., & Holand, D.) | |
| Feb. 2014 | Horizon 2020 regional training: Sustainable olive oil: clean production and eco-innovation policies | Amman, Jordan | Group discussion | |
| Oct. 2013 | Industrial Biotechnology for Lignocellulose Based Processes | Gothenburg, Sweden | Better fermenting yeasts from natural sugar rich environments. | |
| | | | Lipolytic bacteria from the olive phyllosphere | |
| May 2013 | 65th International Symposium on Crop Protection | Ghent, Belgium | Nematicidal activity of *Ochradenus baccatus* against the root-knot nematode *Meloidogyne Javanica* (Oka, Y., Shuker, S., Tkachi, N., Trabelcy, B.,[#] & **Gerchman, Y.)** | |
| Jan. 2013 | Society for Integrative and Comparative Biology | San Francisco, CA, USA | Divergent behavioral coping with fruits chemicals among three congenric rodents (Samuni-Blank, M., Izhaki, I., Dearing, M.D., Karasov, W.H., **Gerchman, Y.**, Kohl, K., Kurnath, P., & Arad, Z.) | |
| July 2013 | FEMS 2013 | Lipzig, Germany | Phyllosphere bacteria as a source for lipase suitable for biodiesel production | |
| | | | Induced antimicrobial activities in *Pistacia atlantica* aphid induced galls | |
| 2012 | Wastewater Purification and Use 2012 | Heraklion, Crete, Greece | Constructed wetlands and UV systems for removal of enteric pathogens and wastewater contaminants (Azaizeh, H., Linden, | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| | | | K., Kalbouneh, S., Tellawi, A., Albalawneh, A., & **Gerchman, Y.**) | |
| 2012 | 9th International Phytotechnology Society (IPS) | Hasselt University, Diepenbeek, Belgium | Removal of pathogens and organic contaminants from wastewater using constructed wetlands and UV systems (Azaizeh, H., Linden, K., Kalbouneh, S., Tellawi, A., Albalawneh, A., & **Gerchman, Y.**) | |
| 2012 | The II International Conference on Antimicrobial Research | Lisbon, Portugal | Distinct antimicrobial activities in *Pistacia atlantica* aphid galls | |
| 2010 | The 13th International Symposium of Microbial Ecology | Seattle, WA, USA | Plant's nectar as a bacterial habitat. (Fridman, S., Izhaki, I., **Gerchman, Y.,** & Halpern, M.) | |
| 2009 | European Society for Evolutionary Biology (ESEB)12$^{th}$ Congress | Turin, Italy | The signaling function of an extra-floral display: What selects for signal development? (Keasar, T., Shmida, A., Sadeh, A., & **Gerchman, Y.**) | |
| 2008 | The 7$^{th}$ European Workshop on Molecular Biology of Cyanobacteria | Ceske Budejovice, Czech Republic | Different CP43's in *Nostoc* sp. PCC7120 | |
| 2007 | Light-Harvesting Systems Workshop | Drymen, U.K. | CP43s of *Nostoc* PCC7120 | |
| 2007 | Photosynthesis 2007 | Glasgow, U.K. | The *Nostoc* sp. PCC7120 CP43s | |
| 2007 | State Transitions | London, U.K. | The *psb*C gene family of *Nostoc* PCC7120 | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| 2005 | 2005 American Control Conference | Portland, OR, U.S.A. | Dynamic control in a coordinated multi-cellular maze solving system (Hsu, A., Vijayan, V., Fomundam, L., **Gerchman, Y.**, Basu, S., Karig, D., Hooshangi, S., & Weiss, R.) | |
| 2004 | Synthetic Biology 1.0: The first International Synthetic Biology Conference | MIT, Cambridge, MA, U.S.A. | Simon 1.0 – A synthetic gene network designed to play "Simon" | |
| 2004 | Defense Advanced Research Projects Agency (DARPA) meeting | Princeton, NJ, U.S.A. | From genetic circuits to solid state devices | |
| 2003 | The 2003 CEBIC meeting | Princeton University, NJ, U.S.A. | The energetic cost of nitrogen fixation in *T. erythraeum* | |
| 2001 | The 2001 Center for Environmental Bioionorganic Chemistry (CEBIC) meeting | Princeton, NJ, U.S.A. | Photosynthesis and $N_2$ fixation in *Trichodesmium* | |
| 2001 | 18th Annual Eastern Regional Photosynthesis Conference | Woods Hole, MA, U.S.A. | Photosynthesis and $N_2$ fixation in *Trichodesmium* – Still an open question | |
| 1997 | The Molecular Basis of Biological Membrane Protein Structure and Function | Albufeira, Portugal | Histidine-226 is part of the pH sensor of NhaA, a $Na^+/H^+$ antiporter in *Escherichia coli* | |
| 1992 | The First Argentinian and First South American Congress of Herpetology | Tucomán, Argentina | Activity of a nocturnal lizard (*Stenodactylus doriae*) during a lunar eclipse at Hazeva (Israel) (Bouskila, A., Ehrlich, D., | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| | | | **Gerchman, Y.**, Lampl, I., Motro, U., Shani, E., Werner, U., & Werner Y.L.) | |

**Active Participation - National**

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| Sep. 2025 | Israeli Agricultural Sciences | Jerusalem | ➔ | Black Soldier Fly Session chair |
| Sep. 2024 | Israel Society for Microbiology A | Ramat Gan | Isolation and characterization of novel methanol tolerant lipases from environmental bacteria for biodiesel production (Feinstein A. and **Gerchman Y.**) | |
| Dec. 2022 | 6th conference of the Israel Society for Biotechnology Engineering | Tel-Aviv | Seed`s watermelon waste as a promising feedstock for renewable energy (bioethanol) and lycopene (Maliniak M.,# **Gerchman Y.**) | |
| July 2022 | The Israel Society of Ecology and Environment Science | Tel-Aviv | What's green outside and fuel inside? (Maliniak, M.,# & **Gerchman, Y.**) | |
| July 2022 | Israeli Society for Microbiology Annual Meeting | Beer Sheva | From fruit – To bird – To germination - Transmission of bacteria from fruits to bird's gut improve digestibility and sprouts growth (Trabelcy, B.,# Izhaki, I., & **Gerchman Y.)** | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| March 2022 | Annual meeting of the Israeli Society for Parasitology, Protozoology, and Tropical Diseases | Kfar Hamacabia | Fish associated bacteria affect mosquito oviposition (Shteindel, N.,[#] **Gerchman, Y.**, & Silberbush, A. *(selected as the outstanding lecture)* | |
| July 2021 | Research in Oranim | Oranim Academic College | The effect of socio-economic status on success in biology standard exams | Session chair |
| Dec. 2020 | Israeli Society for Zoology | On-line | Disarming the *Ochradenus baccatus* fruits "mustard-oil-bomb" by gut bacteria (Trabelsy, B.,[#] Itzhaki, I., & **Gerchman Y.**) | Session chair |
| Dec. 2020 | Israeli Society of Evolutionary Biology | On-line | Mobbing behavior of *Pseudomonas aeruginosa* (Shteindel, N.,[#] & **Gerchman, Y.)** | |
| | | | Gut bacteria disarm the *Ochradenus baccatus* fruits "mustard-oil-bomb" (Trabelsy, B.[#], Itzhaki, I., & **Gerchman Y.**) | |
| Nov. 2020 | Israeli Society of Ecology and Environmental Science | On-line | Use of ozone for mango aphid control | |
| Oct. 2020 | Israeli Society of Ecology and Environment | On-line | Estimating the potential of olive mill solid waste for the production of ethanol and added value products (Abu-Tayeh, H.,[#] **Gerchman, Y**., Asher, J., Azaizeh, H., Venus, J., & Schneider R.) | |
| | | | Making paper and cardboard recycling more sustainable | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| | | | (Peretz, R.,[#] Mamane, H., & **Gerchman, Y.**) | |
| July 2019 | Creative Teaching | Kiryat Tivon | The effect of different types of research projects on high school student's biology standard test results | |
| Jan. 2019 | Israeli Plant Ecology | Kiryat Shemona | Secondary metabolites from *Ochradenus baccatus* fruits reduce seed digestion and encourage seed dispersion (Trabelsy, B.,[#] Izhaki, I., & **Gerchman, Y**.) | |
| Aug. 2018 | MERC conference - Connecting Research and Development: A workshop on water and wastewater research and sector needs | Jerusalem | Use of constructed wetlands and UV systems for simple local wastewater treatment and reuse | |
| Dec. 2017 | Israeli Society for Biotechnology Engineering | Tel Aviv | Production of ethanol from olive mill solid waste by microwave pretreatment and enzymatic saccharification | |
| July 2017 | The 45th Annual Conference of the Israel Society of Ecology & Environmental Sciences | Hertzelia | Ozonation of tannic acid as a model for lignocellulosic biomass pretreatment (Peretz R.,[#] **Gerchman Y.**, Mamane H.) | |
| Feb. 2017 | Plant Ecology 2017 | Sede Boker Campus | The *Ochradenus baccatus*'s glucosinolates-myrosinase system: A biochemical-ecology tale | |
| Dec. 2016 | Frontiers in Infectious Diseases – From Bench to | Askelon | A simple, low-cost, high throughput method for | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| | Bedside | | screening native *H. pylori* urease inhibitors | |
| Feb. 2016 | Plant Ecology 2016 | Tel-Hai college | The *Salvia viridis*' "Flag" – An extrafloral display with double role | |
| Dec. 2015 | Israeli Society for Biotechnology Engineering | Tel Aviv | Methanol resistance bacterial lipase from phyllosphere bacteria – Identification and insight into base of resistance | |
| Oct. 2015 | The Entomological Israeli Society | Tel Aviv University | Psylla resistance pair trees, studying the mechanism of resistance | |
| Apr. 2014 | Israeli Society for Microbiology Annual Meeting 2014 | Haifa | The olive fly microflora as a source for bacteria producing enzymes for the biofuel industry (Ben-Gad, D., # & **Gerchman, Y.**) | |
| Dec. 2013 | Israeli Society for Biotechnology Engineering | Tel Aviv | The olive fly microflora as a source for enzymes producing bacteria for the biofules industry | |
| Oct. 2013 | The Entomological Israeli Society | Oranim Academic College | The olive fly microflora as source for lipolytic bacteria (Ben-Gad, D.,# & **Gerchman, Y.**) | |
| April 2013 | Israeli Water Association meeting 2013 | Airport city | Combined Constructed wetland and UV systems for wastewater treatment in small rural communities | |
| July 2013 | Eurocarb 17 - 17th European Carbohydrate Symposium | Tel Aviv | Utilization of the glucosinolates-myrosinase "mustard oil bomb" system for reinforcement of seed dispersal | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| | | | behavior | |
| Feb. 2013 | The 78th annual meeting of the Israeli Chemical Society | Tel Aviv | What does the "menu du jour" of a spiny mouse have to do with the bioactive natural products? (Chinkov, N., Trabelcy, B.,# Samuni-Blank, M., Izhaki, I., & **Gerchman, Y.**) | |
| Feb. 2013 | Israeli Society for Microbiology Annual Meeting 2013 | Tel Aviv | Antimicrobial activity in *Pistacia atlantica* galls | |
| Jan. 2013 | The 16th annual meeting of the Israeli analytical chemistry society (Israanalitica 2013) | Tel Aviv | What does the "menu du jour" of a spiny mouse have to do with the bioactive natural products? (Chinkov, N., Trabelcy, B.,# Samuni-Blank, M., Izhaki, I., & **Gerchman, Y.**) | |
| Oct. 2012 | The 40th Annual Conference of the Israel Society of Ecology & Environmental Sciences | Tel Aviv | Constructed wetlands combined with UV systems for wastewater treatment and Pathogens removal. | |
| Oct. 2012 | Israeli Society for Entomology, 31th meeting | Rehovot | Microbial defense in *Pistacia atlantica* galls | |
| 2012 | 21st International Conference of Zoology | University of Haifa | Distinct antimicrobial activities in aphid galls on *Pistacia atlantica* | |
| 2011 | Research in Oranim | Oranim Academic College | The phyllosphere as a source for industrial lipases (Zeltzer, T.,# & **Gerchman, Y.**) | |
| | | | Anti-diabetic activity – Partial identification and isolation of | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| | | | the active compound in parsley | |
| | | | Adaptation of the photosynthetic system of the cyanobacterium *Anabaena* sp. PCC7120 to stress conditions | |
| 2011 | 6th Annual Meeting of the Federation of the Israeli Societies of Experimental Biology (FISEB) | Eilat | Phyllosphere bacteria as a source for lipase suitable for biodiesel production (Zeltzer, T.,# & **Gerchman, Y.**) | |
| | | | Do bacteria inhabit the floral nectar of plants? (Fridman, S., Izhaki, I., **Gerchman, Y.,** & Halpern, M.) | |
| 2011 | Israanalytica 2011 | Tel-Aviv | Development of GC-based ethanol determination method for assessment of yeast fermentation and antidiabetic compounds (**Gerchman, Y.**, Gal, R., Mirsky, N., & Chinkov N.) | |
| 2011 | Israeli Society for Microbiology Annual Meeting 2011 | Tel-Aviv | Anti-microbial activities in *Pistacia atlantica* galls | |
| | | | From the leaf to biodiesel – Search for lipolytic phyllosphere bacteria (Zeltzer, T., & **Gerchman, Y.**) | |
| 2011 | The 39th Annual Conference of the Israel Society of Ecology & Environmental Sciences | Megiddo | On the double role of the *Slavum viridis* flag | |
| | | | Microbial defense in *Pistacia atlantica* gall | |
| 2011 | Israeli Society for Biotechnology Engineering | Tel Aviv | Isolation and characterization of osmophilic yeasts from naturally high sugar | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| | | | environments | |
| 2010 | BSF funded Workshop: "Emerging Health Aspects of Wastewater Reuse in Agriculture for Ensuring Sustainability" | Nazareth | Project discussions – Use of nanotechnology for wastewater treatment | Discussion group leader |
| 2010 | Israeli Society of Microbiology 2010 | Bar Ilan University | Floral nectar as a bacterial habitat (Fridman, S., Izhaki, I., **Gerchman, Y.**, & Halpern, M.) | |
| 2010 | Research in Oranim | Oranim Academic College | Phyllosphere bacteria as a source of lipase suitable for biodiesel production (Zeltzer, T., & **Gerchman, Y.**) | Session chairperson |
| | | | Do the purple flag leaves of *Salvia viridis* Lamiaceae serve as visual signal to deter herbivores? (Patikhov, R., Dodek, I., **Gerchman, Y.**, Yerushalmi, Y., & Keasar, T.) | |
| 2010 | Research in Oranim | Oranim Academic College | Polymorphism for flowering color in *Silybum marinum* along an ecological gradient (**Gerchman, Y.**, Keasar, T., Lev-Yadun, S., & Besser E.) | |
| | | | Floral nectar as a bacterial habitat (Fridman, S., Izhaki, I., **Gerchman, Y.**, & Halpern, M.) | |
| 2010 | Israeli Society for Entomology, 29th meeting | Volcany center, Beit Dagan | Anti-bacterial and anti-fungal compounds in *Pistacia atlantica* galls (**Gerchman, Y.**, Raviv-Moshe, Z., & Inbar, M.) | |
| 2010 | Israeli Society for Zoology | Hebrew University, | The double role of the "flag" in *Salvia viridis* (**Gerchman, Y.**, | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| | | Jerusalem | Dodek, I., Petichov, R., Yerushalmi, Y., Lerner, A., & Keasar, T.) | |
| 2010 | The Microbial Ecology "Sandwich Club" meeting | Volcani, Agricultural Research Center, Bet Dagan | Do bacteria inhabit the floral nectar of plants? (Fridman, S., Izhaki, I., **Gerchman, Y.,** & Halpern, M.) | |
| 2009 | Research in Oranim | Oranim Academic College | The *psb*C/*isi*A gene family in the cyanobacteria *Anabaena sp.* PCC7120 (Trabelcy, B., & **Gerchman, Y.**) | |
| 2009 | From Darwin to EvoDevo | Technion, Haifa | The signaling function of an extra-floral display: What selects for signal development? (Keasar, T., Shmida, A., Sadeh, A., & **Gerchman, Y.**) | |
| 2008 | 36th annual meeting of the Israeli Society for Ecology and Environmental Science | Technion, Haifa | Biodegradation of Polycyclic Aromatic Hydrocarbons (PAHs) in river sediments | |
| 2008 | Research in Oranim | Oranim Academic College | Antibacterial compounds from *Pistacia* sp. galls | |
| 2008 | BSF funded Workshop: "Ensuring the Sustainable Reuse of Wastewater for Agricultural Irrigation in Semi-Arid/Arid Regions" | University of Haifa | PAHs and their bioremediation in river sediments | Organizer and Scientific committee member |
| 2007 | The Israel Society for Biochemistry and Molecular Biology | Technion, Haifa | Alternative CP43's in the cyanobacteria *Nostoc* sp. PCC7120 | |
| 2006 | Research in Oranim | Oranim | Photosynthesis, $N_2$ fixation and | |

| Date | Name of Conference | Place of Conference | Subject of Lecture/Discussion | Role |
|---|---|---|---|---|
| | | Academic College | gas vesicles in *Trichodesmium* | |
| 1998 | 2th Annual Meeting of the Federation of the Israeli Societies of Experimental Biology (FISEB) | Eilat | Mutation in Histidine 226 effect the pH dependent of NhaA, a $Na^+/H^+$ antiporter in *Escherichia coli* | |

**b. <u>Organization of Conferences or Sessions</u>**

| Date | Name of Conference | Place of Conference | Subject of Conference | Role |
|---|---|---|---|---|
| Oct. 2020 | Israeli Society of Ecology and Environments (ISEES) | On-line | Annual meeting of ISEES | Member of Scientific Committees |
| Oct. 2016 | TECHNOSCAPE 2016 | Vellore, India | | Member of scientific committee |
| Oct. 2013 | The Entomological Israeli Society | Oranim Academic College campus | Entomology | Conference Chairperson |
| Nov. 2008 | BSF funded workshop "Ensuring the Sustainable Reuse of Wastewater | University of Haifa | Sustainable Reuse of Wastewater for Agricultural Irrigation | Organizing and Scientific Committees |
| 2004 | Defense Advanced Research Projects Agency (DARPA) meeting | Princeton, NJ, U.S.A. | From genetic circuits to solid state devices. | Organizing and Scientific committee |

## 7. Invited Lectures\ Colloquium Talks

| Date | Place of Conference | Name of Conference | Subject of Conference |
|---|---|---|---|
| 2022 | On-line | Yeast4Bio COST action seminar | Biofuels from agricultural waste – Pretreatment and Enzymes |
| 2019 | Shmuel Neaman Institute, Technion, Haifa | Shmuel Neaman Energy forum, Technion | From agricultural waste to biofuels |
| 2013 | Zuckerberg Institute for Water Research, Ben-Gurion University, Israel | Departmental Seminar | Wastewater treatment in small rural communities using Combined Constructed wetland and UV systems |
| 2013 | Agricultural Research Organization, Volkani Center, Bet-Dagan, Israel | Departmental Seminar | Combined Constructed wetland and UV systems for wastewater treatment in small rural communities |
| 2012 | Department of Natural Resource and Environmental Management | University of Haifa | Bio-Hydrogen and Bio-Fuels |
| 2011 | Shmuel Neaman Institute, Technion, Haifa. | Shmuel Neaman symposium | Bio-Hydrogen from algae – Past, present, future. |
| 2008 | Zuckerberg Institute for Water Research, Ben-Gurion University, Israel | Departmental Seminar | The bioenergetics of nitrogen fixation in cyanobacteria. |
| 2008 | Agricultural Research Organization, Volkani Center, Bet-Dagan, Israel | Departmental Seminar | Making ends meet: The bioenergetics of nitrogen fixation in cyanobacteria. |
| 2007 | Weizmann Institute, Dep. of Plant Science | Departmental Seminar | Making the incompatible compatible - Nitrogen fixation, photosynthesis and the life style of *Ttrichodemsium* a marine cyanobacterium. |
| 2006 | University of Haifa, Israel | Departmental Seminar | Gas vesicles, oxygen consumption, photosynthesis and nitrogen fixation in *Trichodesmium*, a marine |

| Date | Place of Conference | Name of Conference | Subject of Conference |
|---|---|---|---|
| | | | cyanobacteria |
| 2004 | Princeton University, NJ, U.S.A. | Prokaryotes meeting | The use of engineered bacteria for nano-bio-fabrication |
| 2003 | Princeton University, NJ, U.S.A. | Post-doc forum | Nitrogen fixation and photosynthesis in *Trichodesmiun*, a marine cyanobacteria |

**8. <u>Research Grants</u>**

**a. <u>Grants Awarded</u>**

| My Role in Research | Other Researchers (Name and role) | Title | Funded by (C) = Competitive fund; Total; % share of budget (No internal division in U. of Haifa) | Years |
|---|---|---|---|---|
| PI | Prof. Hadas Mamane, TAU; Prof. R.L. Boxman, TAU; Dr. Candice Ellison, USDA; Dr. Charles A. Mullen, USDA | Microwave production of Biochar | BARD $322,713, 25% | 2025-2028 |
| PI | Assoc. Prof. Maya Davidovich Pinhas, Technion; Assoc. Prof. Sabrina Spatari, Technion; Dr. Yael Laor, Neve Ya'ar, ARO. | Development of Ethyl-Cellulose for circular agriculture. | (C) Ministry of Environment Protection 749,670 NIS, 29% | 2024-2026 |
| PI | | Improved detection of *Helicobacter pylori* | (C) Ministry of Health 25,000 NIS; 100% | 2023 |

| My Role in Research | Other Researchers (Name and role) | Title | Funded by (C) = Competitive fund; Total; % share of budget (No internal division in U. of Haifa) | Years |
|---|---|---|---|---|
| CI | Prof. Tamar Keasar, U. of Haifa | *Ziziphus* species as feed sources for livestock and for biocontrol agents in drylands | MERC $573,850; 40% | 2023 |
| PI | Dr. Alon Silberbush, U. of Haifa | Species-specific effects of semiochemicals released from competitors on mosquito oviposition habitat selection and life-history traits | (C) ISF 1,120,000 (4 years); 100% | 2022-2026 |
| PI | Dr. M. Koslov, U. of Haifa | lipases from environmental bacteria for biodiesel production and using them for re-design of improved de-novo lipases | Ministry of Energy 695,000 NIS; 100% | 2022-2025 |
| PI | Prof. H. Azaiza, Dr. A. Jones Tel-Hai; Dr. Eng. Aber Balawane CARDNE, Jordan | Conversion of Wastewater Treatment Sludge to Biofuels and High Added Value Products | Middle East Regional Cooperation (MERC) $682,563; ~25% | 2021-2025 |
| Co-PI | Dr. S. Vernik, ARO | Development of fast efficient method for the identification of pathogens in drinking water | Water Authority 439,973 NIS; 40% Resulting publications: D6 | 2020-2023 |
| PI | Prof. H. Mamne, TAU | Medical Ethanol from Municipal trimmings | (C) Ministry of Science – Corona studies. 200,000 NIS., 20% | 2020-2021 |

| My Role in Research | Other Researchers (Name and role) | Title | Funded by (C) = Competitive fund; Total; % share of budget (No internal division in U. of Haifa) | Years |
|---|---|---|---|---|
| | | | Resulting publications: D1,12,14 | |
| PI | Prof. H. Mamne, TAU; Prof. O. Ayalon, U. of Haifa | Ozonation pretreatment for biofuel production from agri-waste – Optimization and life-cycle analysis | (C) Ministry of Environmental Protection 519,225 NIS; 50% Resulting publications: D9,24,25 | 2019-2021 |
| PI | Dr. L. Iasur Kruh Brauda; Dr. V. Naor, Shamir center | Compounds from the *Frateuria defendens* bacteria for controlling vine phytoplasma | (C) Ministry of Science 200,000 NIS; 30% Resulting publications: D3 | 2019-2021 |
| PI | Dr. L. Shealtiel, Tel-Hai | Use of ozone for treatment of Mango aphids | Nekudat Hen; 40%55,000 NIS | 2019-2020 |
| PI | Prof. H. Mamane, TAU; Atlantium LTD as industrial partner | Development of novel water treatment reactor | Israeli Innovation Authority – MAGNETON; 50% 600,196 NIS Resulting publications: D1,14 | 2019-2020 |
| PI | Prof. H. Mamane, TAU; Mekorot national water company as industrial partner | Development of novel water treatment reactor | Israeli Innovation Authority NOFAR 580,000 NIS; 50% Resulting publications: D1,14,17,20,23 | 2017-2018 |
| PI | Prof. H. Mamane, TAU | Catalytic processes for pre-treatment of lignocellulosic biomass and bioethanol production | Ministry of Infrastructure, Energy and Water 697,000 NIS; 50% Resulting publications: D4,7,9,24 | 2015-2018 |

| My Role in Research | Other Researchers (Name and role) | Title | Funded by (C) = Competitive fund; Total; % share of budget (No internal division in U. of Haifa) | Years |
|---|---|---|---|---|
| PI and coordinator | Dr. H. Azaizeh (Galilee R&D), Eng. S. Kalabone, BERC, PA; Dr. Eng. A. Balawneh and, Dr. S. Naoum, NCARE, Jordan | Sustainable use of constructed wetlands for wastewater treatment and reuse in small communities | US-AID MERC TA-MOU-10-M32-020<br>$650,000; 25%<br>Resulting publications: D26,48; E2; F3,5 | 2014-2021 |
| PI | Prof. H. Azaizeh, Galilee R&D | Olive mill waste – Pretreatment, use of yeasts for bioethanol production | Ministry of Environment<br>449,650 NIS; 50%<br>Resulting publications: D19, 32; E3 | 2014-2017 |
| PI | Dr. N. Chincov, U. of Haifa; Prof. H. Mamane, TAU | Advanced Oxidation Processes (AOP) for pre-treatment of lignocellulosic biomass for bioethanol production | Ministry of Environment<br>449,650 NIS; 50%<br>Resulting publications: D4, 7, 9, 24 | 2014-2017 |
| PI | Dr. L. Shealtiel-Harpaz, North R&D; Dr. M. Ibdah, ARO, Dr. D. Holland, Neve Yaar<br>Dr. V. Soroker, ARO | Psylla resistance Pair trees – Elucidation of the mechanism | Ministry of agriculture<br>360,000 NIS; 15%<br>Resulting publications: D26, 29 | 2013-2017 |
| Co-PI | Dr. J. Jadoun (PI), the Galilee Society | Development of rapid method for detection and enumeration of active pathogenic | (C) Ministry of Science and Technology<br>300,000 NIS; 40% | 2013-2015 |

| My Role in Research | Other Researchers (Name and role) | Title | Funded by (C) = Competitive fund; Total; % share of budget (No internal division in U. of Haifa) | Years |
|---|---|---|---|---|
| | | bacteria in drinking and in effluents | | |
| PI | | Cellulosic enzyme from environmental bacteria | Ministry of Environment<br>279,000 NIS; 100%<br>Resulting publications: D36 | 2013-2015 |
| PI | Prof. I. Izthaki & Dr. M. Halpern, both U. Haifa | Secondary metabolites and nectar microflora in floral nectar around the globe | (C) Israeli Science Foundation (ISF)<br>930,000 NIS; 100%<br>Resulting publications:<br>D41, | 2012-2016 |
| PI | Dr. Uri Shanes (Co-PI), U. Haifa; Dr. H. Azaizeh (Co-PI), the Galilee Society | Treatment of road runoffs by solid olive mill waste (GEFET) | (C) Ministry of Science and Technology 360,000 NIS; 66% | 2012-2015 |
| PI | | Microalgae to biofuel: optimization of growth, harvesting and fermenting yeasts | **(C)** Ministry of National Infrastructure<br>260,718 NIS; 100%<br>Resulting publications:<br>D34 | 2012-2014 |
| PI | | Micro and Macro algae for biofuels – Development of teacher's demonstration | MOFET<br>25,000 NIS; 100%<br>Resulting publications: D43 | 2012 |
| PI | Dr. H. Azaizeh (Co-PI), the Galilee Society R&D; Prof. K.G. Linden (Co-PI), Colorado State University, USA; | Constructed wetlands and UV disinfection for wastewater treatment and reuse in small communities | **(C)** BARD-MARD<br>$50,000; 10%<br>Resulting publications:<br>D26 | 2010-2011 |

| My Role in Research | Other Researchers (Name and role) | Title | Funded by (C) = Competitive fund; Total; % share of budget (No internal division in U. of Haifa) | Years |
|---|---|---|---|---|
| | Eng. S. Kalbouneh (Co-PI), BERC, PA; Eng. A-M Tellawi (Co-PI), NCARE, Jordan | | | |
| Co-PI | Prof. I. Izhaki, U. Haifa (PI); Dr. Y. Oka (Co-PI) and Dr. R. Cohen (Co-PI), ARO; Dr. A. Saleh (Co-PI), Al-Quds University; Dr. A. A. Dababat (Co-PI), NARC, PA; Dr. B. Masadeh (Co-PI), NCARE, Jordan | Use *Ochradenus baccatus* for biofumigation | Middle East Regional Cooperation (MERC) TA-2 MOU-08-M28-013<br>$750,000 20%<br>Resulting publications:<br>D25, D30, D31, D33, D34, D36, K1 | 2010-2014 |
| Co-PI | Prof. I. Izhaki (PI), U. Haifa; Dr. Y. Oka (Co-PI), and Dr. R. Cohen (Co-PI), ARO | Development of the desert plant (*Ochradenus baccatus*) for control of soil-borne diseases in the Middle East | **(C)** Ministry of Science and Technology<br>350,000 NIS; 45%<br>Resulting publications:<br>D25, D30, D31, D33, D34, D36, K1 | 2009-2012 |
| Co-PI | Prof. I. Izhaki (PI) & Dr. M. Halperin (PI), U. Haifa | The role of secondary metabolites in floral nectar in mediating plants- microorganisms' interactions | **(C)** Israeli Science Foundation (ISF).<br>740,000 NIS; 100%<br>Resulting publications:<br>D41, 53 | 2008-2012 |

| My Role in Research | Other Researchers (Name and role) | Title | Funded by (C) = Competitive fund; Total; % share of budget (No internal division in U. of Haifa) | Years |
|---|---|---|---|---|
| PI | Prof. U. Zoller, U. Haifa (PI); Dr. H. Azaizeh (Co-PI), the Galilee Society; Prof. C. Dozoretz (Co-PI), Technion | Ensuring the sustainable reuse of wastewater for agricultural irrigation in semi-arid/arid regions | **(C)** BSF-Workshop<br>$25,000; 100%<br>Resulting publications:<br>D26, F4 | 2008 |
| PI | | Biological degradation of anti-estrogenic compounds in river sediments | MOFET<br>30,000 NIS; 100% | 2008 |
| Co-PI | Prof. U. Zoller (PI), U. Haifa; Dr. H. Azaizeh (Co-PI), the Galilee Society; Prof. C. Dozoretz (Co-PI) and Prof. R. Semiat (Co-PI), Technion; Prof. B. Berkowitz (Co-PI), Weizmann Ins.; Dr. D. Mintz (Co-PI), ARO; Prof. B. Chefetz (Co-PI), Prof. Y. Hadar (Co-PI), Prof. Y. Chen (Co-PI), Dr. R. Pedahzur (Co-PI), HUJI; Prof. D. Avisar (Co-PI) and Prof. A. Katzir (Co- | Removal of estrogen disrupting chemicals (EDCs) pharmaceuticals and pathogens from sewage, via advanced technologies for sustainable effluent reuse | **(C)** MOST - Scientific and Technological Infrastructures Development Program.<br>4,400,000 NIS; 32% | 2007-2011 |

| My Role in Research | Other Researchers (Name and role) | Title | Funded by (C) = Competitive fund; Total; % share of budget (No internal division in U. of Haifa) | Years |
|---|---|---|---|---|
| | PI), TAU | | | |
| PI | | Differential expression of *Nostoc* PCC7120 *psb*C gene family | E.U.-Marie Curie Reintegration Grant. 80,000 Euro; 100% Resulting publications: F8 | 2007-2009 |
| PI | | Seed grant – University of Haifa | Multiple Total 30,000 NIS | Multiple |
| PI | | Seed grant – Oranim Academic College of Education | Multiple Total 80,000 NIS | Multiple |
| PI | | Seed grant – MOFET Institute | Multiple Total 15,000 NIS | Multiple |

**b. <u>Submission of Research Proposals – Pending</u>**

| Role in Research | Co-Researchers | Topic | Submitted to | Year |
|---|---|---|---|---|
| | | | | |

**c. <u>Submission of Research Proposals – Not Funded</u>**

| Role in Research | Other researchers | Topic | Submitted to | Year | Score |
|---|---|---|---|---|---|
| PI | Coordinator: Eric Palevsky, ARO; Many | Waste to soil amendment | PRIMA | 2021 | 7.5/10 |
| PI | Many | Biomass to Ethanol and Phenols Transformation | EU - Horizon 2020 | 2020 | 12/15 (considered |

| Role in Research | Other researchers | Topic | Submitted to | Year | Score |
|---|---|---|---|---|---|
| | | using Sunlight and CatalYsis | | | high) |
| PI | Prof. Hadas Mamane, TAU | Use of UV-LEDs for disinfection of corona viruses | (C) ISF-Corona | 2020 | Very good |
| PI | Dr. Maya. Davidovich-Pinhas, Technion | Biodegradable polymers for food packaging | (C) Ministry of Science – Green Chemistry | 2019 | Very Good |
| PI | | Role of NO in bacteria attachment | (C) ISF | 2015 | Very Good |
| PI | | Organic solvent tolerant lipases for biodiesel production | (C) ISF | 2014 | Very Good |
| PI | | Biomass for bio-fuels – production, treatment and conversion | (C) Ministry of Science – Infrastructure program | 2012 | Rejected |
| PI | | Microbial ecology of the olive cuticle – Chemistry, Microbiology and the Environment | (C) ISF | 2009 | Rejected |
| CI | Prof. U. Zoller, U. Haifa; Prof. C. Dozoretz, Technion; Prof. Dr. H.F. Schröder,- RWTH, and Prof. Dr. S. Ulrich, RWTH, Germany | Nanoparticles-Surfactants-EDCs Systems in Aquatic Environments. Occurrence, Potential Synergistic Ecotoxicological Risk and Treatment/removal | (C) German-Israeli © Project Cooperation (DIP) | 2008 | Rejected |

| Role in Research | Other researchers | Topic | Submitted to | Year | Score |
|---|---|---|---|---|---|
| | | (in WWTPs) | | | |
| PI | | The *psb*A and *psb*C gene family´s in the cyanobacteria *Nostoc* sp. PCC 7120 and their role in adaptation | (C) ISF | 2007 | Very good |
| CI | Prof. Ido Izhaki (PI) & Dr. Malka Halperin (PI), U. Haifa | The role of secondary metabolites in floral nectar in mediating the interactions between plants and microorganisms | (C) Israeli Science Foundation (ISF) | 2006 | Very good Re-submission funded |

**9. <u>Scholarships, Awards and Prizes</u>**

- 2007 - University of Haifa Young Investigator Encouragement Award ($1,000).
- 2002 - Certificate of Merit from "Amersham Biosciences & Science Prize for Young Scientists".
- 2000 – 2002 - Center for Environmental Bioionorganic Chemistry fellowship.

**10. <u>Teaching</u>**

**a. Courses Taught in Recent Years**

| Year | Name of Course | Type of Course | Level | Number of Students |
|---|---|---|---|---|
| 2022- Present | Concepts in Biochemistry | Lectures and laboratory | M.Ed. | ~40 |
| 2020- 2022 | Basic scientific concepts | Lectures and laboratory | Special Ultra Orthodox (Haredim) program | ~30 |
| 2019- 2022 | Chemistry 101 | Lectures and laboratory | Special Ultra Orthodox (Haredim) program | ~30 |
| 2019- Present | Order and Chaos | Lectures and seminars | M.Ed. | 30 |

| | | | | |
|---|---|---|---|---|
| 2019-Present | Advanced methods in protein analysis | Laboratory | B.Sc. and M.Sc. | 10 |
| 2019-Present | Advanced methods in natural products analysis | Laboratory | B.Sc. and M.Sc. | 10 |
| 2017-2018 | Chemistry 102 | Lectures, seminars and laboratory; Oranim Academic College of Education | B.Ed. | 25 |
| 2015- 2019 | Natural products workshop | Workshop | B.Sc. and M.Sc. | 8 |
| 2012-2015 | Environmental Biochemistry | Lectures, seminars and laboratory | B.Sc. and M.Sc. | 16 ~ 20 |
| 2009-2011 | Protein separation methods workshop | Workshop | B.Sc., M.Sc. & Ph.D. | 12 |
| 2005-Present | Biochemistry 101 | Introduction course – Lectures and laboratory | B.Sc. | 30~40 |
| 2005-2018 | Biochemistry 102 | Introduction course – Lectures and laboratory | B.Sc. | 30~40 |
| 2005-2018 | Biochemistry 201 | Lectures and laboratory | B.Sc. | 20 |
| 2005-2008 | Genetic Engineering | Lectures and seminars | B.Sc. | 28 |
| 2004-2005 | Synthetic Biology | Summer workshop; Princeton University | B.Sc., M.Sc. & Ph.D. | 25 |

**b. <u>Supervision of Graduate Students</u>**

**Ph.D. students**

| Name of Student | Name of other mentors | Title of Thesis | Degree | Date of Completion / In Progress | Students' Achievements |
|---|---|---|---|---|---|
| Ms. Aviv Feinstein | | Methanol resistance lipases from phyllosphere bacteria | Ph.D. | In Process | |
| Ms. Natali Amar-Noam | Dr. Yael Kopelman, Technion | Fighting *Helicobacter pylori* with urease inhibitors | Ph.D. | In Process | |
| (Dr.) Mr. Beny Trabelsy | Prof. Ido Itzhaki, U. of Haifa | Secondary metabolites in *Ochradenus baccatus* - An eco-biochemical look | Ph.D. | Ph.D. approved March 2023 | Ph.D. granted June 2023 |
| (Dr.) Mr. Nimrod Steindel | Prof. Ido Izhaki, U. of Haifa | Microbial Predator-pray interaction and Predator Sensing | Ph.D. | Ph.D. approved May 2023 | Received Water Authority scholarship Ph.D. approved Aug. 2023 |
| Mr. Barak Halperen (registered in TAU) | Prof. Hadas Mamane, TAU | Conversion of gardening waste to ethanol | Ph.D. | In Process | |
| (Dr.) Mr. Yan Rosen (registered in TAU) | Prof. Hadas Mamane, TAU | Advanced Oxidation process for better enzymatic conversion of agricultural waste | Ph.D. | Ph.D. Granted March 2023 | Received Ministry of Science scholarship |
| (Dr.) Mr. Roi Peretz (registered in TAU) | Prof. Hadas Mamane, TAU | Conversion of paper waste to ethanol | Ph.D. | Ph.D. Granted May 2022 | |

| Name of Student | Name of other mentors | Title of Thesis | Degree | Date of Completion / In Progress | Students' Achievements |
|---|---|---|---|---|---|
| (Dr.) Ms. Hiba Abu-Tayeh | Prof. Ido Izhaki, U. Haifa | Assessing the potential of microwave pre-treatment of the solid waste of the olive industry for the production of various economic products | Ph.D. | Ph.D. Granted May 2021 | Accepted a researcher position in ARO (2022)<br><br>Received Ministry of Science scholarship. |

**M.Sc. students**

| Name of Student | Name of other mentors | Title of Thesis | Degree | Date of Completion /In Progress | Students' Achievements |
|---|---|---|---|---|---|
| Ms. Aviv Feinstein | | Methanol resistance lipases from phyllosphere bacteria | M.Sc. started Oct. 2021 | Thesis approved Nov. 2024 | |
| Ms. Maya Maliniak | | Seeded watermelon wastes to ethanol and high added value products | M.Sc. started Oct. 2020 | Thesis approved March 2023 | |
| Mr. Nimrod Shteindel | | On bacterial attachment, Nitric Oxide and predator sensation | M.Sc. | Degree granted Aug. 2016 | Continued to Ph.D. |

| Name of Student | Name of other mentors | Title of Thesis | Degree | Date of Completion / In Progress | Students' Achievements |
|---|---|---|---|---|---|
| Mr. Doron Ben Gad | | Isolation and characterization of cellulase producing bacteria from the Olive Fly Larvae | M.Sc. | Degree granted Aug. 2015 | Received **Dean's excellence award**. At present Head of R&D at Karnieli Vet LTD |
| Ms. Natali Amar | | Natural products from *Pistacia* | M.Sc. | Degree granted July 2015 | Finished with ***summa-cum-laude*** and **faculty excellence award** Continued to Ph.D. |
| Mr. Tal Cohen | | *O. baccatus* for biofumigation | M.Sc. | Degree granted July 2015 | |
| Mr. Avraham Shnitzer | | Yeasts from naturally high sugar environments for biofuels production | M.Sc. | Degree granted July 2015 | |
| Ms. Carmit Por (Oranim M.Ed. thesis) | | The effect of transfer from BIOTOP to BIOHEKER and school economics and their effect | M.Ed. | Degree granted Feb. 2015 | |
| (Dr.) Ms. Daniela Gutman | Prof. F. Fares, U. of Haifa | The effect of *O. baccatus* root extract on proliferation and | M.Sc. | Degree granted June 2014 | Continued to Ph.D. Currently in |

| Name of Student | Name of other mentors | Title of Thesis | Degree | Date of Completion / In Progress | Students' Achievements |
|---|---|---|---|---|---|
| | | apoptosis activation in prostate cancer cells | | | Post-Doc |
| Ms. Orit Gibli (Oranim M.Ed. thesis) | | Effect of the transfer from BIOTOP to BIOHEKER on Bagrut grades | M.Ed. | Degree granted March 2014 | |
| Ms. Eman Hatib | Dr. Shifra Sela, Dr. Amiram Ariel | Changes in extra- and intra-cellular elastase and other cell membrane proteins from primed polymorphonuclear leukocytes | M.Sc. | Degree granted March 2013 | |
| (Dr.) Ms. Tal Zelzer (Previously Grossman) | | Methanol tolerance lipases from phyllosphere bacteria. | M.Sc. | Degree granted February 2012 | Currently CTO of Phytolon LTD<br>Finished M.Sc. with **summa-cum- laude** and **faculty excellence award** and continued to Ph.D.<br>Received Converging Technologies fellowship 2009-2011 |
| Mr. Benny Trabelcy | | Five genes are better | M.Sc. | Degree | Received |

| Name of Student | Name of other mentors | Title of Thesis | Degree | Date of Completion / In Progress | Students' Achievements |
|---|---|---|---|---|---|
| | | than two, the *psb*C gene family of *Nostoc* PCC7120 | | granted October 2010 | **Dean's excellence award.** Continued to Ph.D. |
| Mr. Shi Musbat | Dr. Nitza Mirsky | Hypoglycemic natural compounds from Parsley | M.Sc. | Degree granted October 2010 | Patent submitted. Received **Dean's excellence award**. Currently chief scientist in Teva LTD |

## 11. Miscellaneous

None

## 12. Professional Experience

| Years | Advisory work for industry |
|---|---|
| 2023-Present | Naki |
| 2023-Present | Sterlights Oy |
| 2021-2024 | Jordan Valley Water Association |
| 2021-Present | Pilar LTD (multiple projects) |
| 2021-2022 | Biotic LTD, Israel |
| 2020-2022 | Tosaf LTD, Israel |
| 2020-2022 | ReMilk LTD – scientific advisory board |
| 2017 | Kamedis LTD |
| 2015-Present | BioNutrition LTD, USA |
| 2015-Present | Algae Art Technologies LTD, Israel |

| | |
|---|---|
| 2012-Present | EDREI BioHydrogen LTD, France |
| 2015-2016 | NextFerm LTD, Israel |
| 2014-2016 | Asta Technologies LTD, Israel |

**PUBLICATIONS**

## A. Ph.D. Dissertation

**Gerchman Y.**, (2000). The pH sensing site in NhaA, the $H^+/Na^+$ exchanger form *E. coli.* Israel, Jerusalem: Hebrew University. (105+5 Pages). [Hebrew].

Supervisor: Prof. Etana Padan, Division of Molecular and Microbial Ecology, Institute of Life Science. Hebrew University in Jerusalem.

Publications: D64-73

## B. Scientific Books (Refereed)

None, but please see section 'E'.

## C. Other Scientific Publications - monographs:

None

## D. Articles in Refereed Journals

## Published

*The first author is usually the person who did most of the experimental work, the last author is usually the group head, and the rest appear according to their relative contribution (**unless otherwise specified**).*

**Published** #student/post-doc under my direct supervision; [IF, 5y IF (both according to Web of Science); H-index (according to SJR); Ranking (according to JCI)], appear in Thomson-Reuters Master Journal List = √; Q# = Quartile according to SJR; {Times cited}

**Present citation indices**:

Google Scholar: 5,547 citations; h-index 34; i10-index 67

Web of Science: 3,507 citations (without self-citation); h-index 28

Scopus: 3,889 citations; h-index 29

1. Abu Tayeh H.N., Asscher J.A., Azaizeh H., **Gerchman Y**., 2026. Investigating the interaction of pretreatment and saccharification processes for bioethanol production from olive mill solid waste. Biomass and Bioenergy, 207, 108725. https://doi.org/10.1016/j.biombioe.2025.108725 [IF=5.8; 5y IF=5.7; 21/177] **Q1**
2. Halpern B., Pras A., Halanur M., **Gerchman Y.**, Mamane H. (2025). Enhanced hydrolysis of lignocellulosic waste using highly efficient ozone pretreatment in a venturi system: a comparison of free and strainer models. Cellulose. https://doi.org/10.1007/s10570-025-06536-5 [IF=4.9; 5y IF=5.3; 2/23] **Q1**{2}
3. Itkin T., Unger K., Barak Y., Yovel A., Stekolshchik L., Ego L., Aydinov Y., **Gerchman Y.**, Sapir A. (2024) Exploiting the Unique Biology of Caenorhabditis elegans to Launch Neurodegeneration Studies in Space. Astrobiology, 24(6) [IF=3.5; 5y IF=4.5; 23/109] **Q1** {1} https://www.liebertpub.com/doi/10.1089/ast.2023.0096
4. Shteindel N., **Gerchman Y.**, Silberbush A. (2024). Fish microbiota repel ovipositing mosquitoes. Journal of Animal Ecology, 93(5), 599-605. DOI: 10.1111/1365-2656.14068 [IF=3.5; 5y IF=4.7; 8/180] **Q1** {2} Available online here
5. Shteindel N.[#], **Gerchman Y.**, Silberbush A. (2024) Mosquito Egg Raft Distribution Is Affected by Semiochemicals: Indication of Interspecific Competition. Insects, 15, 364. https://doi.org/10.3390/insects15050364 [IF=2.7; 5y IF=2.9; 16/109] **Q1** {1} Available online here
6. Or-Chen, D., **Gerchman, Y.**, Mamane, H. Peretz, R.[#] (2024) Paper-Mill Wastes for Bioethanol Production in Relation to Circular Economy Concepts: A Review. Applied Science, 2024, 14, 1081 [IF=2.5; 5y IF=2.7; 44/179] **Q2** {12} Available online here
7. Silberbush, A., Halabi M., Shteindel, N, **Gerchman, Y.**, Azaizeh, H., Shahar, B., Kurzbaum, E. (2023) Olive mill wastewater extract as a potential mosquito larvicide. Journal of Vector Ecology 48(2), 141-144 [IF=1.7, 5y IF=1.9; 40/100] **Q2** {1}. Available online here
8. Shteindel, N.,[#] & **Gerchman, Y**. (2023). Effect of drinking water salt content on the interaction between SDS and bacteria. *Microbiology Spectrum. e0101123* [IF=3.7, 5y IF=5.9; 76; 62/135] √ **Q2** {1}. Available online here
9. Atari N., Mamane H., Silberbush A., Zuckerman N., Mandelboim M., **Gerchman Y.** (2023) Disinfection of SARS-CoV-2 by UV-LED 267 nm: comparing different variants. *Scientific Reports 13*, 8229 [IF=4.99, 5y IF=5.52; 282; 19/135] √ **Q1** {8}. Available online here.
10. Shteindel, N.,# Gutman, D., Atzmon, G., Gerchman, Y. (2023). Quantification of bacterial adhesion to tissue in high-throughput kinetics. Biology: Methods and Protocols, 8(1), bpad014. [IF=3.6, 5Y IF=; 55/83] √ Q1. Available online here.

11. Trabelcy, B.,[#] Shteindel, N.,[#] Lalzar, M., Izhaki, I., & **Gerchman Y**. (2023). Bacterial detoxification of plant defense secondary metabolites alleviates the fundamental conflict between plants and fruit consumers. *Nature Communication*, *14, 1821* [IF=17.69; 5y IF=17.76; 466; 5/135] √ **Q1** {12}. Available online here.
12. Naama-Amar, A.,[#] **Gerchman, Y.**, Iasur Kruh, L., & Naor, V. (2022). Evaluation of the biocontrol activity of *Frateuria defendens*-derived metabolites against mollicutes. *Plant Signaling and Behavior, 17*(1), 2070355. [IF=2.73; 5y IF=2.75; 98; 96/239] √ **Q2** {2} Available online here
13. Rosen, Y.,[#] Maslennikov, A., Trabelcy, B.,[#] **Gerchman, Y.**[&@], & Mamane H.[@] (2022) Short ozonation for effective removal and detoxification of fermentation inhibitors resulting from thermal pretreatment. *Renewable Energy*, *189*, 1407-1418 [IF=8.63, 5y IF=8.39; 232 ;12/74] √ **Q1** {14} Available online here. [&]*Corresponding author;* [@]*Equal contribution*.
14. Trabelcy, B.,[#] Izhaki, I., & **Gerchman, Y.** (2022). The survival contest of endozoochory: Conflicting interests in a frugivorous avian plant mutualism. *Journal of Ecology, 110*(3), 526-539. [IF=6.25, 5y IF=7.16; 202; 16/259] √ **Q1** {2} Available online here
15. Gunasekaran, D., **Gerchman, Y.,** & Vernick, S. (2022). Electrochemical detection of waterborne bacteria using bifunctional magnetic nanoparticle conjugates. *Biosensors, 12*(1), 36. [IF=5.74, 5y IF=5.97; 59; 22/76] √ **Q1** {24} Available online here
16. Sterenzon, E.,[#] Vadivel, K.V., **Gerchman, Y.**, Luxbacher, T., Narayanan, R., & Mamane, H. (2021). Effective removal of acid dye in synthetic and silk dyeing effluent: Isotherm and kinetic studies. *ACS Omega, 7*(1), 118–128. [IF=4.13, 5y IF=4.19; 77; 73/179] √ **Q1** {39}. Available online here
17. Shteindel, N.,[#] & **Gerchman, Y.** (2021) *Pseudomonas aeruginosa* mobbing-like behavior against *Acanthamoeba castellanii* bacterivore and its rapid control by QS and environmental cues. *Microbiology spectrum, 22*, *9*(3), e0064221. [IF=9.04, 5y IF=8.11; 76; 20/136] √ **Q1** {9}. Available online here.
18. Rosen, Y., [#] Mamane, H., & **Gerchman, Y.** (2021). Immersed ozonation of agro-wastes as an effective pretreatment method in bioethanol production. *Renewable Energy, 174*, 382-390. [IF=8.63, 5y IF=8.39; 191; 16/114]√ **Q1** {19}. Available online here
19. Trabelcy, B.,[#] Chinkov, N., Samuni-Blank, M., Merav, M., Izhaki, I., Carmeli, S., & **Gerchman, Y.** (2021) Investigation of glucosinolates in the desert plant *Ochradenus baccatus* (Brassicales: Resedaceae). Unveiling glucoochradenin, a new arabinosylated glucosinolate. *Phytochemistry, 187*, 112760. [IF=4.0, 5y IF=4.13; 176; 44/235]√ **Q1** {22}. Available online here

20. Simha, P., Barton, M.A., Perez-Mercado, L.F., McConville, A.R., Lalander, C., Magri, M.E., Dutta, S., Kabir, H., Selvakumr, A., Zhoug, X., Martin, T., Kizos, T., Kataki, R., **Gerchman, Y.**, Herscu-Kluska, R., Alrousanm, D., Gohn, E.G., Elenciuc, D., Głowaka, A., Korculanin, L., Tzeng, R.V., Ray, S.S., Niwagaba, C., Proutyu, C., Mihelcic, J.R., & Vinneråsa B. (2021). Willingness among food consumers to recycle human urine as crop fertiliser: Evidence from a multinational survey. *Science of the Total Environment, 765*, 144438. [IF=10.75, 5y IF=10.24; 244; 25/274] √ **Q1** {61}. Available online here

21. Barancheshme, F., Philibert, J., Noam-Amar, N.,[#] **Gerchman, Y.**, & Barbeau, B. (2021). Assessment of saliva interference with UV-based disinfection technologies. *Journal of Photochemistry and Photobiology B: Biology, 217*, 112168. [IF=6.81, 5y IF=5.96; 116; 8/71]√ **Q1** {20}. Available online here

22. Barton, M.A., Simha, P., Magri, M.E., Dutta, S., Kabir, H., Selvakumar, A., Zhou, X., Lv, Y., Martin, T., Kizos, T., Triantafyllou, E., Kataki, R., **Gerchman, Y.**, Herscu-Kluska, R., Alrousan, D., Dalahmeh, S., Goh, E.G., Elenciuc, D., lowacka, A.G. Korculanin, L., Tzeng, R.V., Ray, S.S., Ganesapillai, M., Niwagaba, C., Prouty, C., Mihelcic, J.R., & Vinner, B. (2021). Attitudes of food consumers at universities towards recycling human. *Data in Brief, 35*. [IF-1.0; 1.0; 70/135] **Q3** {5}. Available online here

23. Pousty, D.,[#] Hofmann, R., **Gerchman, Y.**, & Mamane, H. (2021). Wavelength-dependent time–dose reciprocity and stress mechanism in UV-LED disinfection of *Escherichia coli. Journal of Photochemistry and Photobiology B: Biology, 217*, 112129. [IF=6.81, 5y IF=5.96; 116; 8/71] √ **Q1** {66}. Available online here

24. Peretz, R.,[#] Mamane, H., Wissotzky, E., Sterenzon, E., & **Gerchman Y.** (2021). Making cardboard and paper recycling more sustainable: Recycled paper sludge for energy production and water-treatment applications. *Waste and Biomass Valorization*, 1-10. [IF=3.45, 5y IF=3.58; 59; 108/274]√ **Q2** {37}. Available online here

25. **Gerchman, Y.** (2020). Antimicrobial activities in *Pistacia atlantica* - Aphids make a difference!. *Proceedings, 66*: 9. doi:10.3390/proceedings2020066009 [IF=N/A]{5} Available online here

26. **Gerchman, Y**., Mamane, H., Friedman, N., & Mandelboim, M. (2020). UV-LED disinfection of Coronavirus: wavelength effect. *Journal of Photochemistry and Photobiology B: Biology, 212*, 112044. [IF=6.25, 5y IF=4.0; 116; 8/71] √ **Q1** {196} Available online here

27. Lebedev, R., Trabelcy, B.,[#] Goncalves, IL., **Gerchman, Y.**, & Sapir, A. (2020). Metabolic reconfiguration in *C. elegans* suggests a pathway for widespread sterol auxotrophy in the animal kingdom. *Current Biology, 30*(15), 3031-3038. [IF=10.83, 5y IF=10.2; 316; 26/297] √ **Q1** {34}. Available online here

28. Abu Tayeh, H.N.,[#] Azaizeh, H., & **Gerchman, Y.** (2020). Circular economy in olive oil production–Olive mill solid waste to ethanol and heavy metal sorbent using microwave pretreatment. *Waste Management, 113*, 321-328. [IF=7.15, 5y IF=6.0; 161; 29/274] √ **Q1** {62} Available online here
29. Betzalel, Y.,[#] **Gerchman, Y.**, Cohen-Yaniv, V., & Mamane, H. (2020). Multiwell plates for obtaining a rapid microbial dose-response curve in UV-LED systems. *Journal of Photochemistry and Photobiology B: Biology, 207*, 111865. [IF=6.25, 5y IF=4.0; 116; 8/71]√ **Q1** {31}. Available online here
30. Sinha, A., Israeli, R., Cirigliano, A., Gihaz, S., Trabelcy, B.,[#] Braus, G.H., **Gerchman, Y.**, Fishman, A., Negri, R., Rinaldi, T., & Pick, E. (2020). The COP9 signalosome mediates the Spt23 regulated fatty acid desaturation and ergosterol biosynthesis. *FASEB Journal, 34*(4), 4870-4889. [IF=5.39, 5y IF=5.42; 277; 8/87]√ **Q1** {16} Available online here
31. Halperen, B.,[#] Peretz, R.,[#] **Gerchman, Y**., & Mamane, H. (2021). One man's loss is another man's treasure – The use of plant waste for production of disinfectant in the corona era. *Ecology & Environment, 11*(4), 61-63. [Hebrew]. Available online here
32. **Gerchman, Y.**, Cohen-Yaniv, V., Betzalel, Y.,[#] Yagur-Kroll, S., Belkin, S., & Mamane, H. (2019). The involvement of superoxide radicals in medium pressure UV derived inactivation. *Water Research, 161*, 119-125. [IF=9.13, 5y IF=9.64; 303; 1/90]√ **Q1** {32} Available online here
33. Peretz, R.,[#] Sterenzon, E.,[#] **Gerchman, Y.**[&], Vadivel, V.K., Luxbacher, T., & Mamane, H. (2019). Nanocellulose production from recycled paper mill sludge using ozonation pretreatment followed by recyclable maleic acid hydrolysis. *Carbohydrate Polymers, 216*, 343-351. [IF=7.18, 5y IF=6.89; 208; 2/72]√ **Q1** {58} [&]*Corresponding author*. Available online here
34. Rosen, Y.,[#] Mamane, H., & **Gerchman, Y.** (2019). Short ozonation of lignocellulosic waste as energetically favorable pretreatment. *BioEnergy Research, 12*(2), 292-301. [IF=2.2, 5y IF=2.74; 58; 72/112]√ **Q2** {40}.
35. Yahyaa, M., Rachmany, D., Shaltiel-Harpaz, L., Nawada, B., Sadeh, A., Ibdah, M., **Gerchman, Y.**, Holland, D., & Ibdah, M. (2019). A *Pyrus communis* gene for p-hydroxystyrene biosynthesis, has a role in defense against the pear psylla *Cacopsylla biden*. *Phytochemistry, 161*, 107-116. [IF=3.04, 5y IF=3.37; 176; 47/234]√ **Q1** {15} Available online here
36. Shteindel, N.,[#] Yankelev, D., & **Gerchman, Y.** (2019). High-throughput quantitative measurement of bacterial attachment. *Microbial Ecology, 77*(3), 726-735. [IF=3.36, 5y IF=3.86; 128; 43/168]√ **Q1** {13}. Available online here
37. Peretz, R.,[#] Mamane, H., Sterenzon, E., & **Gerchman, Y.** (2019). Rapid quantification of cellulose nanocrystals by Calcofluor White fluorescence staining. *Cellulose, 26*(2), 971-977.

[5y IF=4.21, IF=4.51; 121; 1/21]√ **Q1** {23} Available online here

38. Shaltiel-Harpaz, L., **Gerchman, Y.**, Ibdah, M., Kedoshim, R., Rchemani, D.[#], Hatib, K., Bar-Ya'akov, I., Soroker, V., & Holland, D. (2018). Grafting on resistant stocks reduces scion susceptibility to pear psylla, *Cacopsylla bidens*. *Pest Management Science, 74*(3), 617-626. [IF=3.26, 5y IF=3.86; 125; 7/101]√ **Q1** {14} Available online here
39. Zhu, H., Zhou, Q-w., Yan, B-x., Liang, Y-x., Yu, X-f., **Gerchman, Y.**, & Cheng X-w. (2017). Influence of vegetation type and temperature on the performance of constructed wetlands for nutrient removal. *Water Science and Technology, 77*(3), 829-837. [IF=1.3, 5y IF=1.31; 137; 71/98]√ **Q2** {53}.
40. Khatib-Massalha, E., Michelis, R., Trabelcy, B.,[#] **Gerchman, Y.**, Kristal, B., Ariel, A., & Sela, S. (2018). Free circulating active elastase, contributes to chronic inflammation in hemodialysis patients. *American Journal of Physiology-Renal Physiology, 314*(2)**,** F203-F209. [IF=3.3, 5y IF=3.49; 169; 16/80]√ **Q1** {16} Available online here
41. Abdelhadi, S.O., Dosoretz, C., Rytwo, G., **Gerchman, Y.**, & Azaizeh, H.A. (2017). Production of biochar from olive mill solid waste for heavy metal removal. ***Bioresource Technology*** *244*(1), 759-767. [IF=5.81, 5y IF=5.98; 294; 13/161]√ **Q1** {136}.
42. Peretz, R.,[#] **Gerchman, Y.**, & Mamane, H. (2017). Ozonation of tannic acid to model biomass pretreatment for bioethanol production. *Bioresource Technology, 241*, 1060-1066. [IF=5.81, 5y IF=5.98; 274; 13/161]√ **Q1** {32}. Available online here.
43. **Gerchman, Y.**, Vasker, B., Tavasi, M.,[#] Mishael, Y., Kinel-Tahan, Y., & Yehoshua, Y. (2017). Effective harvesting of microalgae: Comparison of different polymeric flocculants. *Bioresource Technology, 228*, 141–146. [IF=5.81, 5y IF=5.98; 294; 13/161]√ **Q1** {114}. Available online here.
44. Amar, N.,[#] Peretz, A., & **Gerchman, Y.** (2017). A cheap, simple high throughput method for screening native *Helicobacter pylori* urease inhibitors using a recombinant *Escherichia coli*, its validation and demonstration of *Pistacia atlantica* methanolic extract effectivity and specificity. *Journal of Microbiological Methods, 133*, 40-45. [IF=1.96, 5y IF=1.7; 133; 57/79]√ **Q2** {10}. Available online here.
45. Ben-Gad, D.,[#] & **Gerchman, Y.** (2017). Reclassification of *Brevibacterium halotolerans* DSM8802 as *Bacillus halotolerans* comb. nov. based on microbial and biochemical characterization and multiple gene sequence. *Current Microbiology, 74*(1), 1-5. [IF=1.37, 5y IF=1.46; 90; 105/126]√ **Q2** {17} Available online here
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47. Sherman, I.,[#] **Gerchman, Y.**, Sasson, Y., Gnayem, H., & Mamane, H. (2016). Disinfection and Mechanistic Insights of *E. coli* in water by Bismuth Oxyhalide photocatalysis. *Photochemistry and Photobiology, 92*(6), 826-834. [IF=2.12, 5y IF=2.27; 131; 47/73]√ **Q2** {18}. Available online here

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49. Samuni-Blank, M., Izhaki, I., **Gerchman, Y.**, Dearing, D.M., Karasov, W.H., Trabelcy, B.,[#] Edwards, T.M., & Arad, Z. (2014). Taste and physiological responses to glucosinolates: Seed predator versus seed disperser. *PLoS One*, *9*(11), e112505. [IF=3.23, 5y IF=3.70; 332; 9/57]√ **Q1** {9}. Available online here

50. Samuni-Blank, M., Izhaki, I., Laviad, S., Bar-Massada, A., **Gerchman, Y.**, & Halpern, M. (2014). The role of abiotic environmental conditions and herbivory in shaping bacterial community composition in floral nectar. *PLoS One*, *9*(6), e99107. [IF=3.23, 5y IF=3.70; 332; 9/57]√ **Q1** {61}. Available online here.

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31/94]√ **Q2** {12}. Available on-line here

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57. Azaizeh, H., Linden, K., Kalbouneh, S., Tellawi, A., Albalawneh, A. & **Gerchman**, **Y.** (2013). Constructed wetlands and UV systems for removal of enteric pathogens and wastewater contaminants. *Water Science and Technology*, *67*, 651-657. [IF=1.1; 137; 44/80]√ **Q2** {41} Available online here.
58. Theitler, D.J.,[#] Nasser, A., **Gerchman, Y.**, Kribus, A., & Mamane, H. (2012). Synergistic effect of heat and solar UV on DNA damage and water disinfection of *E. coli* and bacteriophage MS2. *Journal of Water and Health*, *10*, 605-618. [IF=1.2, 5y IF=1.53; 59; 93/116]√ **Q2** {24}. Available online here.
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## Accepted for Publication

## E. Articles or Chapters in Scientific Books (which are not Conference Proceedings)

## Published

1. Abu Tayeh H.N., **Gerchman Y.**, Azaizeh H. (2024). Microwave-assisted Technologies for Microalgae Biomass Valorization. In: Sustainable Radiation Technologies in Waste-biomass Valorization. Green Chemistry and Sustainable Technology. *Eds. Verma, P., Kumar, B. Springer.* Pages 159-182 (13 pages) https://doi.org/10.1007/978-3-031-63941-8_7 {1}
2. **Gerchman Y.** (2022) Impact of culture conditions on the microalgae-based fuels production. In *"3rd Generation Biofuels: Disruptive technologies to enable commercial production". Eds. Jacob-Lopes E., Zepka L., Severo I., Maroneze M., Elsevier* (14 pages) https://doi.org/10.1016/B978-0-323-90971-6.00043-7
3. Azaizeh H., Balawneh A., Kalbouneh S., **Gerchman Y.** (2022) Constructed wetlands lessons from Israel, Jordan and Palestine: the effect of plants and filter media on CW performance. *In*

"C*onstructed Wetlands for Wastewater Treatment in Hot and Arid Climates"*, *Ed. Stefanakis A., Springer.* pp175-189 (14 pages) https://doi.org/10.1007/978-3-031-03600-2_10

4. Azaizeh, H., Abu Tayeh, H.N.[#], & **Gerchman, Y.** (2020). Valorization of olive oil industry solid waste and production of ethanol and high value-added biomolecules. In N.K. Rathinam & R.K. Sani (Eds.), *Biovalorisation of Wastes to Renewable Chemicals and Biofuels*, pp. 27-40. *Elsevier*. {27}

## Accepted for Publication

None

## F. Articles in Conference Proceedings

## Published

1. Jonas-Levi, A., **Gerchman, Y.**, Khoury, M[#]., Azaizeh, H. (2025). Conversion of Sewage Sludge to Lipids for Biofuels. 4th International Conference on Sustainable Chemical and Environmental Engineering 1st – 4th September 2025, Thessaloniki, Greece
2. **Gerchman,** Y., Mamane, H., Friedman, N., & Mandelboim, M. (2021). UV-LEDs vs Corona virus - Wavelength effect. *IUVA Asia Workshop*, P49.
3. **Gerchman, Y.**, Barancheshme, F., Philibert, J., Noam-Amar, N.[#], & Barbeau, B. (2021). Optical properties of the human saliva and implications on UV inactivation of respiratory pathogens. *IUVA Asia Workshop*, P50.
4. **Gerchman, Y.**, Sayed, F., Abou-kandi, A., Abu Tayeh, H.N.[#], & Azaizeh, H. (2018). Using sugarcane as constructed wetlands plant for better economic viability. Spain: CEBAS-CSIC. http://intranet.ciemat.es/ICIEMATportal/recursos/bibliotecas/biblioteca_central/1355798416_299202013135.pdf {1}
5. Samuni-Blank, M., Izhaki, I., Dearing, M.D., Karasov, W.H., **Gerchman, Y.**, Kohl, K., Lymberakis, P., Kurnath, P., & Arad, Z. (2013). Divergent behavioral strategies in three Congeneric rodents for sealing with fruit toxins. Published *in Integrative and Comparative Biology, 53*, E188-E188.
6. Azaizeh, H., Linden, K., Kalbouneh, S., Tellawi, A., Albalawneh, A., & **Gerchman, Y**. (2012). Constructed wetlands and UV systems for removal of enteric pathogens and wastewater contaminants. *Wastewater Purification & Reuse 2012 (WWPR2012)*. Create, March 2012.
7. **Gerchman, Y**., Dodek, I.[#], Petichov, R.[#], Lerner, A., Shmida, A., Sadeh, A., Yerushalmi, Y., & Keasar, T. (2011). On the double role of the Salvia viridis flag. Published in *Israel Journal of Ecology & Evolution, 57*(3). 260-260.
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10. Padan, E., Gerchman, Y., Rimon, A., Rothman, A., Dover, N., Carmel-Harel, O. (2007). The Molecular Mechanism of Regulation of the NhaA $Na^+/H^+$ Antiporter of *Escherichia Coli*, a key Transporter in the Adaptation to $Na^+$ and $H^+$. Published in *Novartis Foundation Symposium 221*-Bacterial Responses to pH. 183-199 {29}
11. Hsu, A., Vijayan, V., Fomundam, L., **Gerchman, Y.**, Basu, S., Karig, D., Hooshangi, S., & Weiss, R. (2005). Dynamic control in a coordinated multi-cellular maze solving system. *ACC: Proceedings of the 2005 American Control Conference, 1-7*, 4399-4404. {5}. FullText
12. Bouskila, A., Ehrlich, D., **Gerchman, Y.**, Lampl, I., Motro, U., Shani, E., Werner, U., & Werner, Y.L. (1992). Activity of a nocturnal lizard (Stenodactylus doriae) during a lunar eclipse at Hazeva (Israel). *Proceedings of the First Argentinian and First South American Congress of Herpetology.* Tucomán. (D-2).

## Accepted for Publication

None

## G. Entries in Encyclopedias

None

## H. Other Scientific Publications

## Published

1. Shteindel, N.[#], **Gerchman, Y.**, & Silberbush A. (2023). Fish microbiota repels ovipositing mosquitoes. *bioRxiv*. 2023.02.15.528615
2. Abu Tayeh, H.N.,[#] Asscher, J.A., Azaizeh, H., & **Gerchman, Y.** (2022). Optimization of bioethanol production from olive mill solid waste by microwave-organic acid pretreatment using statistical design of experiments**.** *SSRN***.** 4030331 {1}
3. Trabelcy, B.[#], **Gerchman, Y.**, & Sapir, A. (2021). A sterol-defined system for quantitative studies of sterol metabolism in *C. elegans. STAR protocols, 2*(3), 100710. {1}
4. **Gerchman, Y.,** Mamane, H., Friedman, N., & Mandelboi., M. (2021). Corrigendum to "UV-LED disinfection of Coronavirus: wavelength effect. *Journal of Photochemistry and Photobiology B: Biology, 212*, 112044. **Q1** {2}

5. Steindel, N.[#], & **Gerchman, Y.** (2021). Bacterial adhesion kinetics in a high throughput setting with seconds to minutes time resolution. *Bio-protocols, 11*(2), e3844. DOI: 10.21769/BioProtoc.3844 {1}
6. Maliniak, M.,[#] & **Gerchman, Y**. (2020). Green outside and fuel inside. *Field Crop Workers Journal* (עלון עובדי הפלחה). [Hebrew].
7. Peer, S., Welicker-Pollak, M., Sne, Y., Mekler, V., Butensky, N., Elnir, P., & **Gerchman, Y. (**2011**)**. Oranim College induces education to sustainability. *MOFET Institute Bulletin, 45*, 48-52. [Hebrew].
8. **Gerchman, Y.**, Mint, P.P.[#], & Zoller, U. (2008). PAHS and their bioremediation in river sediments. *Abstracts of the BSF funded workshop "Ensuring the sustainable reuse of wastewater for agricultural irrigation in semi-arid/arid regions*, p. 34.
9. **Gerchman, Y.**, & Werner, U. (1990). The expansion of amphibian distribution into the Negev. *Hardun, 5*, 23–28. [Hebrew], 82 [In English]. {2}.

## Accepted for Publication

None

## I. Other Publications

1. **Gerchman, Y.**, Shealtiel-Harpaz, L., Noi, M., Lahav, K., Sofer-Arad, K., & Kdoshim, E. (2020). Ozone in agricultural – From the ozone layer to prevention of mango aphids. *Alon Hanotea, 74*, 26-29. [Hebrew].
2. Shealtiel-Harpaz, L., **Gerchman, Y.**, Holland, D., Ibdah, M., Soroker, V., & Rachmani, D. (2016). Facing Pear Psylla by using resistance Pair trees variants. *Alon Hanotea, 70*, 16-22. [Hebrew].

## J. Other Works Connected with my Scholarly Field

### Patents

1. Mamane, H., Peretz, R.[#], **& Gerchman Y.** (2020). *Development of a novel ozone-based technology for conversion of biomass paper waste to ethanol, nanocellulose and biosorbent material.* Provisional Patent 2020
2. **Gerchman, Y.**, Mamane, H., Cohen-Yaniv, V., Betzalel, Y., & Balas, A. (2018). *Method and device for water disinfections*. PCT patent WO 2018/150425 Al.
3. **Gerchman, Y.** (2018). *A new extraction process for Glabridin from Liquorish root*. Provisional patent 2018**.**
4. **Gerchman, Y., &** Mamane, H. (2017). *Novel design for UV water disinfection reactors*. Provisional patent 2017.

5. **Gerchman, Y.**, & Amar, N.[#] (2017). *A low cost Simple high-throughput method for screening for Helicobacter pylori urease inhibitors and a plant extract inhibiting this enzyme*. Provisional patent 2017.
6. **Gerchman, Y., &** Amar, N.[#] (2017). *Plant extract as an anti-candida spp. substance*. Provisional patent 2017**.**
7. **Gerchman, Y.**, & Musbat, S.[#] (2010). *Method for screening compounds for the treatment of diabetes*. Provisional patent 2010.
8. Weiss, R., Sohn, L., Thiberge, S., **Gerchman, Y.,** & Kam-Chuen, J. (2004). *Gene coder*. Provisional patent 2004.

## K. Submitted Publications

**Articles**

1. Abu Tayeh, H.N.[#], Asscher, J.A., Azaizeh, H., & Gerchman Y. (Submitted). Optimization of bioethanol production from olive mill solid waste by microwave-organic acid pretreatment using statistical design of experiments. Biofuel Research Journal. [Q1].
2. Shteindel, N.,[#] & Gerchman, Y. (Under Review). Predator produced Nitric Oxide serves *Pseudomonas aeruginosa* in targeting paramecia for attack. Under review in *Microbiology Spectrum* [**Q2**]

## L. Summary of my Activities and Future Plans

**Manuscript in preparation** (running titles)

1. **Gerchman, Y.**, Betzalel, Y., Cohen-Yaniv, V., & Mamane, H. (2022). *Simultaneous exposure to low-pressure and UVB-LED result in synergistic inactivation and lower recovery.*
2. **Gerchman, Y.**, Trabelcy, B.[#], & Mamane, H. *The effect of low concentration of metal salts on Solar Water Disinfection (SODIS) efficiency*.
3. Trabelcy, B.[#], Cohen, T.[#], Izhaki, I., & **Gerchman, Y.** *The effect of fertilization on glucosinolates profile in O. baccatus roots and foliage – worlds un-connected*.
4. Mint, P.P.[#], Zoller, U., & **Gerchman, Y.** *Enhancing the remediation of PAHS in River Sediments by addition of surfactants*.
5. Ben-Gad, D.,[#] & **Gerchman, Y.** *Cellulases from Bacillus halotolerans comb. nov*.
6. Feinstein A.[#], Zelzer, T.,[#] & **Gerchman, Y.** *Isolation and characterization of a methanol resistance lipase producing bacteria from phyllosphere bacteria*.
7. Haim, S., Amir A., Trabelcy, B.[#], **Gerchman, Y.,** Lebrija-Trejos E. The importance of root storage carbon fir tree restoration after fire.

**Research interest and future plans**

My research interest combines ideas and concepts from *Ecology, Evolution, Microbiology and Biochemistry* (both pure and Applicable) to initiate a fresh look on old (and new) questions. This somewhat unique approach brings in interesting outputs but also results in much collaborative work where different people bring in different expertise, and thus many authors on some of the papers.

Besides my deep interest in fundamental basic scientific questions, in the recent years I am paying more attention to applicable research, e.g. seeking ways to utilize biochemical knowledge to improve conversion of waste to fuel (See L1 below) and to improve water treatment (L2). In the more 'pure'-science side (L3) my research aims to broaden our understanding of the roles of enzymes and natural products in ecological interactions, and the way they mediate multi-trophic interactions. This approach also allows me to do research under the very limited setting of the college where resources are scarce and equipment is very limited.

A more detailed description of my research interest follows:

L1. Waste to biofuels:

Given the high cost environmental costs of fossil fuels there is rising interest in fuels from biological origin - mainly bio-ethanol and bio-diesel. I am working on improving biofuel production:

a. Bacterial lipases for biotechnology and alternative energy

Lipases are water-soluble enzymes that catalyze that hydrolysis of carboxyl ester bonds present in triacylglycerols to liberate fatty acids and glycerol. Lipases are ubiquitous throughout living organisms and have many commercial uses. One promising use of lipases, especially given the current high cost of fossil oil, is in the production of biodiesel, the diesel-equivalent fuel derived from vegetable oils or animal fat. Biodiesel has benefits from the environmental point of view, since it is biodegradable and has almost net zero emission. Currently the array of available lipases for biodiesel production is very limited due to the need for stability of the enzymes in the presence of high methanol concentrations (a component of biodiesel formation reaction), raising the need for novel lipases. My laboratory is actively searching lipases that are tolerant to organic solvents from bacteria that live on olive fruit skins. Currently multiple strains of *Pseudomonas stutzeri* were found to harbor lipase activity in this environment but only two of them were found to harbor methanol resistance lipase. In the future I intend to sequence the genes coding for the resistance/none resistance lipases, in order to identify methanol resistance specific regions. This project was supported by the Converging Technologies fellowship program. One paper on this topic has been published in *Current Microbiology* (see D#24) and one more is currently under preparation (M#3). This project has very

recently (Dec. 2021) won a grant from the Ministry of Energy.

b. Agriculture waste to ethanol – alternative pretreatment, alternative enzymes, and better fermenting yeasts

I am actively seeking ways to improve the conversion of lignocellulosic waste to ethanol, a replacement transportation fuel and cellulose nanocrystal, and added value product.

I. Alternative pretreatments (See items D#42, #49, #51, #53, #56, #60, #63, #64) specially microwave and ozonation. Currently, using funding from the Ministry of Energy and from the Ministry of Environmental Protection, the efficiency of these pretreatment was established in lab scale for olive mill solid waste and for mixed municipal trimmings, correspondingly. Future work will include energetic and economic analysis of these process and, if found favorable, upscaling.

II. Alternative cellulases (See item D#39 and M#2). Supported by a grant from the Ministry of Environment I am looking into cellulase and amylase producing microorganisms. Our first paper on this topic is published (D#23) and one more is in preparation (M#2). Future work include isolation and characterization of cellobiase producing bacteria and yeasts from lactose rich environments.

III. Alternative fermenting yeasts: Yeast fermentation is a crucial step in ethanol fermentation. Osmophilic yeasts have a benefit for such process as they can be used for high gravity fermentation. In the last years my lab has isolated osmophilic yeasts from many naturally sugar rich environments (floral nectar, honey and many more), belonging to different families. Future work will include testing the ability of these isolates to ferment different sugars, resistance to fermentation inhibitors, and tolerance to fermentation relevant conditions such as high temperature and ethanol content.

L2. Water safety, wastewater reuse

Freshwater availability is becoming a major issue of concern worldwide because of population growth and decline in precipitation. Therefore, wastewater treatment and reuse is rapidly becoming a common practice worldwide (e.g. in Israel, ~85% of the wastewaters are reclaimed for agriculture irrigation). My research deal with two aspects of wastewater treatment:

a. Understanding the mechanisms underlying inactivation of waterborne pathogens by different treatments including, among others, irradiation sources and the effect on abiotic conditions on such inactivation. Many papers were published and current work focus on designing novel UV based disinfection reactors combining the benefits of low-pressure lamp (low cost and energy consumption) with those of medium pressure based (high inactivation and low recovery) by intelligence selection of UV-LEDs with specific wavelength. These designing efforts supported by

NOFAR and MAGNETON grants from Rashut Hahadshanut. Future work will also include continuing these studies using reporter bacteria to identify specific stress inflicted on the bacteria by other UV sources as well as other common water treatments (chlorine, iodine and more).

b. Current activated sludge-based wastewater treatment offers many benefits for water treatment and reclamation but those plants are complicated and expensive to build and maintain, rendering their use impractical in rural settings such as many small communities in the Middle East. I am looking into the use of constructed wetlands as a method for cheap simple wastewater treatment in rural small communities, such as abundant in Jordan and in the PA, with special emphasis on the integration of UV-systems for bacterial and pathogen removal. This project was supported by the BARD-MARD foundation and by MERC grant and resulted in four publications (D#23, #40, E#3, F#6). Future work will investigate the use of sugarcane as wetland plant and production of ethanol from the sugarcane sap, to make wetland establishing more economically attractive.

L3. Natural products and secondary metabolites in plants - their role in plant-animal/pathogen interactions and possible uses

Plants are known to produce many metabolites with a variety of interesting properties. My research focuses on the ecological importance of some of these compounds and some possible uses of such:

a. The desert plant *O. baccatus* was found to be rich in glucosinolates secondary metabolites (Project supported by the Ministry of Science R&D grant program and by a MERC grant). Multiple papers were published on the plant and (#24, #30, #31, #34, #37), including two recent papers describing the novel glucosinolates from *O. baccatus* (D#61) and the effect of these compounds on food consumption and digestion (D#69). Future work includes investigating the interplay of these secondary metabolites with the gut microbiome and the resulting effects on digestion and fitness.

b. Aphid-plant interaction in *Pistacia* sp. galls: *Pistacia atlantica* is a common plant in the Mediterranean forest characterized by a variety of aphid induced galls. The galls are formed after a female aphid lays her eggs on the plants and serve as an incubator for the aphid's young for as long as 8 months. These galls are rich in sugars and other organic materials, an ideal substrate for the growth of pathogens (e.g. bacteria and fungi); nevertheless, such growth is rarely seen. Unique bactericide and fungistatic activity were identified in the galls (D#20, #54). Work was also done on identifying the ecological relevant of gall coloration (D#17, #18, #29). Future work will include isolation of specific compounds and looking into the biochemical aspects of gall maturation and coloration, many aspects of still unstudied.

L4. Science Education

Research projects in high school are assumed to be highly important but the effect of such on the results of high-school students in standardized final tests (Bagrut) was not studied. I am looking at the effect of different types of research project on these grades to better understand the best way to utilize them.