

# Irina S. Druzhinina



## PROFESSIONAL ADDRESS

Nanjing Agricultural University, College of Resources and Environmental Sciences  
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## CONTACT



«*Nomina si nescis,  
perit et cognitio rerum*»  
Carl von Linnæus  
"Philosophia Botanica", 1751

FungiG Fungal Genomics Laboratory,  
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## CURRENT POSITIONS AND ASSIGNMENTS

Professor (Full), Fungal Genomics Laboratory (FungiG), Leader  
Editor, Applied and Environmental Microbiology (AEM), ASM  
Associate Editor, Mycoasia  
Editorial Board Member, Fungal Biology and Biotechnology, BMC  
Editorial Board Member, Journal of Fungi (JoF), MDPI  
Guest SI Editor, Science of the Total Environment  
Head of the TU Wien Collection of Industrial Microorganisms, Vienna, Austria  
Head of the International Committee of *Trichoderma* Taxonomy [www.trichoderma.info](http://www.trichoderma.info) (ICTT)  
Coordinator and co-PI of the *Trichoderma* whole genus genomics project, JGI DOE, Berkeley, USA

## SUMMARY OF SCIENTIFIC ACHIEVEMENTS

- Publications in peer-reviewed journals >130
- Books edited (including ongoing commitments) 5
- Book chapters (including ongoing commitments) >20
- Citations (Research Gate / Google Scholar / Google scholar since 2017): >10260 / >11430 / >6054
- *h*-index (Research Gate / excl. self-citation / Google scholar): 62 / 57 / 61
- Fundraising efficiency (National science funds, universities, and industry) >3.2 Mio Euro
- Invited and selected talks on international symposia >30
- Organization of scientific meetings (including scheduled) 8
- Member of scientific societies 6
- Editor in peer-reviewed scientific journals 4
- Editorial board member 2
- Developed scientific web projects (total / currently active) 8 / 4

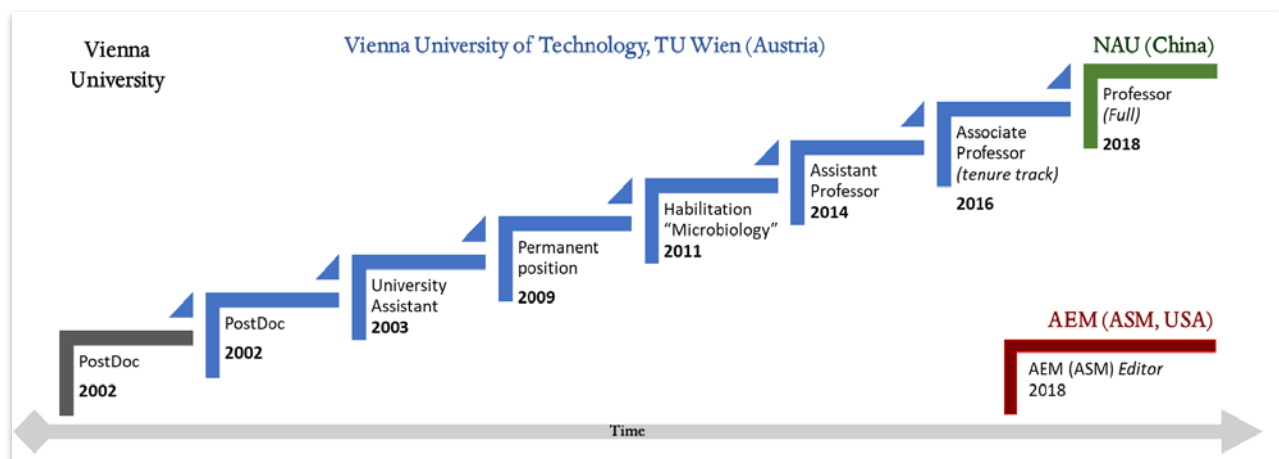
## RESEARCH KEYWORDS

Fungal taxonomy, fungal fitness, fungal genomics, fungal communities, genetics and genomics, molecular evolution and phylogeny, horizontal gene transfer in fungi, fungal diversity, metagenomics, surface-active proteins, hydrophobins, fungal cell biology, *Trichoderma*, mycoparasitism, microbial diversity, DNA BarCoding, phenotype profiles, microbial ecophysiology, heterologous protein production, proteomics, microbial ecology, fungal – bacterial interactions, biological control of fungal pests, plant growth promotion, tropical ecology, insect microbiomes, biological degradation of synthetic polymers

## QUALIFICATIONS

- 1981 – 1991, Gymnasium with emphasis on Mathematics & Physics, Moscow, Russia; school-leaving certificate with honor
- 1991 – 1996, Lomonosov's Moscow State University, Faculty of Biology, Dept. of Mycology & Algology, Moscow, Russia. Diploma with honor degree: Botany and Ecology, Mycology and Algology
- 1996 – 1997, Post-graduate course (Philosophy, Mycology, Genetics of populations) at the Lomonosov's Moscow State University, Faculty of Biology, Dept. of Mycology & Algology, Moscow, Russia
- 1998, Master degree in the University of Vienna (Mag. rer. nat.), Vienna, Austria
- 1998 – 2001, Ph.D. study in the Institute of Botany, University of Vienna, Vienna, Austria
- 2001, Doctor of natural science (Dr. rer. nat.), specialization on Botany University of Vienna, Vienna, Austria
- 2011, Habilitation on Microbiology (Priv. Doz.), Vienna University of Technology (TU Wien), Vienna, Austria
- 2016, Associate Professor (Laufbahnstelle), Vienna University of Technology (TU Wien), Vienna, Austria
- 2019, Professor (Full), Nanjing Agricultural University (NAU), Nanjing, Jiangsu, China

## MAJOR EMPLOYMENT TIMELINE (2001 – 2021)



## PROFESSIONAL LIFE

- 2002 – 2002, Post-doc researcher in the Institute of Risk Research, University of Vienna, Vienna, Austria
- 2002 – 2003, Post-doc researcher in the Institute of Chemical Engineering, Vienna University of Technology (TU Wien), Vienna, Austria
- 2002 – 2007, Scientific secretary of the International Subcommittee on *Trichoderma* and *Hypocrea* of IUMS International Commission on Taxonomy of Fungi (ICTF)
- since 2002, Head of the TU Collection of Industrial Microorganisms (TUCIM), Vienna University of Technology (TU Wien), Vienna, Austria
- 2003 – 2014, University assistant in the Institute of Chemical Engineering, Vienna University of Technology (TU Wien), Vienna, Austria
- 2003 – 2011, Leader of the Project Group Fungal Diversity and Evolution
- 2003, Training on BIOLOG Phenotype Microarrays, ECORC, Ottawa, Canada
- 2004, Training on Evolutionary Biology, Molecular Evolution Workshop, MBL, Woods Hole, USA
- since 2007, Chair of the International Subcommittee on *Trichoderma* and *Hypocrea*, [www.trichoderma.info](http://www.trichoderma.info)

- 2008, *Maternity leave, 10 months*
- 2009 – 2010, Principal investigator for the industrial project “Pest management” with BASF (Germany) through the Institute of Chemical Engineering, Vienna University of Technology (TU Wien), Vienna, Austria
- 2008 – 2009, Principal investigator for the industrial project “*BioDiesel* production from microalgae” with TUMA pumpen (Austria) through the Institute of Chemical Engineering, Vienna University of Technology (TU Wien), Vienna, Austria
- 2010 – 2015, Project manager in the Austrian Centre of Industrial Biotechnology (ACIB), strategic project “Targeting Enzymes to Polymers”, Vienna, Austria
- 2011, Habilitation on Microbiology (“Privatdozentin” = “Prov.Doiz.”), Vienna University of Technology (TU Wien), Vienna, Austria
- 2011 – 2018, Leader of the Microbiology Research Group (FG), Institute of Chemical Engineering (ICEBE), Vienna University of Technology (TU Wien), Vienna, Austria
- 2011 – 2013, Tutor for TVFA (TU Wien) Seminar SCHIMMELPILZE IN GEBÄUDEN, Vienna University of Technology (TU Wien), Vienna, Austria
- 2012 – 2018, Key Researcher in the Austrian Centre of Industrial Biotechnology (ACIB), Vienna, Austria
- 2013 – 2014, Project Group Leader in the Austrian Centre of Industrial Biotechnology (ACIB), Vienna, Austria
- 2013 – 2016, Head (Bereichsleiterin) of the Research Division Biotechnology and Microbiology, Institute of Chemical Engineering (ICEBE), Vienna University of Technology (TU Wien), Vienna, Austria
- 2014 – 2016, Assistant Professor in the Institute of Chemical, Environmental and Bioscience Engineering, Vienna University of Technology (TU Wien), Vienna, Austria
- 2015, Training “Leadership in science”, *hfp consulting*, UK
- 2016 – 2018, Associate Professor (Laufbahnstelle = tenure track) in the Institute of Chemical Engineering (ICEBE), Vienna University of Technology (TU Wien), Vienna, Austria
- 2017 – 2018, Guest Professor FH Campus Wien, Vienna, Austria
- 2018, Honored guest Professor, Nanjing Agricultural University, Nanjing, China
- 2018 – 2023, Editor in the Applied and Environmental Microbiology, ASM
- Since 2019, Full Professor, Research group leader, Nanjing Agricultural University, Nanjing, China
- 2019, Honored “100 Talent” Professor of the Jiangsu Province, China
- Since 2020, Curator of Outlineoffungi.org web portal of fungal taxonomy, international
- Since 2020, Coordinator and the Co-PI for the JGI (DOE, USA) Community Sequencing Project Whole genome Genomics of *Trichoderma*, international
- Since 2021, Associated editor of MycoAsia journal, China
- 2021, Guest Editor, Science of the Total Environment SI: Microbiome in Environmental Health and Sustainability
- 2021, Invited speaker for the SYSU EEB Summer School 2021, Guanzhou, Guangdong, China
- 2022, Invited plenary speaker at the 31st Fungal Genetic Conference, Asilomar, California, USA

#### DEVELOPED SCIENTIFIC WEB PROJECTS

- [www.trichoderma.info](http://www.trichoderma.info) – website of International Subcommittee on Taxonomy of *Hypocrea*, ICTF, IUMS
- [www.trichokey.com](http://www.trichokey.com) – website supporting molecular identification of *Trichoderma*
- [www.FungiG.org](http://www.FungiG.org) – website of the Fungal Genetics Group (FungiG), Nanjing, China

#### ORGANIZATION OF SCIENTIFIC MEETINGS (INCLUDING SCHEDULED)

- 2006, Organizer of the 8th European Conference on Fungal Genetics, ECFG, Vienna, Austria
- 2006, Chair of the Symposium on *Trichoderma* taxonomy on the International Workshop on *Trichoderma*, Vienna, Austria
- 2008, Chair of the Symposium on Taxonomy of Industrially Important Fungi and an invited speaker on the IUMS Congress of Mycology, Istanbul, Turkey
- 2010, Chair of the Symposium on Molecular Ecology of Fungi in a course of the 9th International Mycological Congress, Edinburgh, UK
- 2017, Chair and the organizer of the Symposium “Effectors and Small Secreted Cysteine-Rich Proteins”, 29<sup>th</sup> Fungal Genetics Conference, March 13 – 19, 2017 Asilomar, USA

- 2018, Workshop organizer and invited speaker: *Trichoderma* and Soilborne Diseases on the First International Congress of Biological Control, May 14 – 16, 2018, Beijing, China
- 2022, Member of the local Scientific Committee of the 16th European Conference on Fungal Genetics, ECFG16, Innsbruck, Austria
- 2023, Member of the Scientific Committee of the International Mycological Congress, ICM, Amsterdam, The Netherlands

#### MEMBER OF SCIENTIFIC COMMUNITIES

- Since 2007, chair of the International Committee on Taxonomy of *Trichoderma* of the IUMS International Commission on Taxonomy of Fungi (ICTF)
- Since 2007, member of IUMS International Commission on Taxonomy of Fungi (ICTF)
- Since 2007, member of the Steering committee of fungal barcode initiative
- Since 2006, member of American Society of Microbiology

#### REVIEWER FOR SCIENTIFIC JOURNALS AND FUNDING ORGANIZATIONS

- 2013 – 2018, Editorial Board Member for Applied and Environmental Microbiology
- Since 2017, Editorial Board Member for BMC Fungal Biology and Biotechnology
- Since 2010, Springer Journal of Zhejiang University SCIENCE B
- Reviewer for national research funds in Austria, Australia, Belgium, Germany, Netherlands, Russia, Israel, Kazakhstan, etc.
- Reviewer for (selected journals, in alphabetic order) African Journal of Microbiological Research, Applied Microbiology and Biotechnology, Amino Acids, Annals of Microbiology, Antonie van Leeuwenhoek Journal of Microbiology, Applied and Environmental Microbiology, Applied Microbiology, Biocontrol, Biocontrol Science and Technology, Biomacromolecules, Biotechnology for Biofuel, Biotechnology Journal, BMC Biotechnology, BMC Benomics, Canadian Journal of Botany, Catalysis communications, Crop Protection, Current Genetics, Environmental Microbiology and Environmental Microbiology Reports, Experimental and Molecular Pathology, Fungal Genetics and Biology, Folia Microbiologica, Fresenius Environmental Bulletin (FEB), Frontiers of Chemical Science and Engineering, Frontiers of Environmental Science and Engineering of China, Frontiers of Microbiology, Functional and Integrative Genomics, Fungal Biology, Fungal Diversity, Indonesian microbiology, Journal of Basic Microbiology, Journal of Medical Microbiology, Journal of Agricultural Science and Technology (JAST), Journal of Applied Genetics Springer, Journal of Bioremediation & Biodegradation, Journal of Biotechnology, Journal of Zhejiang University SCIENCE B, Molecular Biology and Evolution, MGAG Molecular Genetics and Genomics, Microbial Cell Factories, Microbial Ecology, Microbial Pathogenesis, Microbiological research, Microbiology, MycoAsia, MycoKeys, Mycologia, Mycological Progress, Mycological research, Mycology an International Journal of fungal biology, Mycopathologia, Mycoscience, Natural Product Research, New Phytologist, Nova Hedwigia, Plant Physiology and Biochemistry, PLoS ONE, Physiological and Molecular Plant Pathology, Research in microbiology, Science of Food and Agriculture, Scientific reports, Soil Biology and Biochemistry, Spinger Plus, Sydowia, Tropical Plant Pathology

#### PROJECT LEADER AND PROJECT MANAGER (2013 – 2021)

- |  |   |
|--|---|
| • FUNGIG STARTUP FUND<br>Funded by Nanjing Agricultural University, China                          | 2019 - 2023<br>650 000 Euro (5 000 000 RMB) |
| • 100 TALENTS PROGRAM<br>Funded by the Jiangsu Province, China                                     | 2019 - 2021<br>65 000 Euro (500 000 RMB)    |
| • HYDROPHOBINS: THE VITAL INVENTION OF FUNGI<br>Funded by the Austrian Science Fund FWF            | 2018, granted<br>418 20.50 Euro             |
| • MICROBIAL ECOLOGY OF EXPLODING ANTS<br>Funded by the Vienna Science and Technology Fund WWTF     | 2014 - 2018<br>785 200 Euro                 |
| • <i>TRICHODERMA</i> PROTEINS WITH ANKYRIN DOMAINS<br>Funded by the Austrian Science Fund FWF      | 2013 - 2018<br>443 215.50 Euro              |
| • <i>TRICHODERMA</i> – <i>BURKHOLDERIA</i> INTERACTIONS<br>Funded by the Austrian Science Fund FWF | 2013 - 2018<br>328 860 Euro                 |
| • MOLECULAR ECOLOGY OF <i>TRICHODERMA</i><br>Funded by the Austrian Science Fund FWF               | 2005 - 2013<br>260 860 Euro                 |
| • GENOMICS OF <i>TRICHODERMA HARZIANUM</i> T37<br>Nanjing Agricultural University, China           | 2012 - 2017<br>100 000 Euro                 |
| • OVERPRODUCTION OF A PROKARYOTIC PROTEASE<br>Carbios, France                                      | 2015 - 2016<br>48 000 Euro                  |

- ANALYSIS OF PEPTAIBOLS OF *TRICHODERMA REESEI* 2013 - 2015  
AB Enzymes, Germany 13 000 Euro
- HETEROLOGOUS GENE EXPRESSION OF MYCOTOXIN HYDROLYSING ENZYMES 2013 - 2014  
Biomin, Austria 70 000 Euro

### PROJECT MANAGER

- TARGETING ENZYMES TO POLYMERS 2010 - 2015  
Funded by the Austrian Center Industrial Biotechnology 600 000 Euro  
Project manager since 2010  
Key Researcher since 2011  
Research group leader since 2013
- „CLONOSTACHYS“ 2013 – 2016  
Funded by the Austrian Science Fund FWF 232 921.50 Euro  
Project manager 2013 – 2016  
Research group leader 2014 – 2016

### EARLIER RESEARCH GRANTS, AWARDS, SCHOLARSHIPS AND INDUSTRY COLLABORATIONS

- 1998 - 2001, Bertha von Suttner Doctorate Scholarship from the Austrian Office of Academic Exchanges (ÖAD)
- 2000 - 2002, Grant from Austria-Hungary bilateral scientific and technical collaboration program (Wissenschaftlich - Technische Zusammenarbeit des ÖAD)
- 2002 - 2004, Responsible researcher in the project, “Biodiversity and population structure of biocontrol species of *Trichoderma*” funded by the Austrian ministry of Science and Culture, GZ 45.515/1-VI/B/7a/2001
- 2003 - 2007, Responsible researcher in the project “Speciation in *Trichoderma*” (FWF Austrian Science Foundation, P 16601-B12)
- 2004 - 2006, Grant from Austria-Italy bilateral scientific and technical collaboration program (Wissenschaftlich - Technische Zusammenarbeit des ÖAD)
- 2004 - 2005, Grant from Hochschuljubilaumsstiftung der Stadt Wien
- 2006 - 2010, Responsible researcher in the project “Phylogeny of *Trichoderma* Section *Longibrachiatum*” (FWF Austrian Science Foundation, P19340)
- 2009 - 2010, Industrial cooperation with BASF, Germany
- 2008 - 2009, Industrial cooperation with TUMA Pumpen, Austria

### ADMINISTRATIVE EXPERIENCE IN TU WIEN 2003 – 2018 (IN GERMAN)

- Leiterin der Projektgruppe Mikrobiologie im Forschungsbereich „Biotechnologie und Mikrobiologie“ (damaliger Leiter: Univ. Prof. C. P. Kubicek) 2003 - 2011
- Leiterin der Forschungsgruppe „Mikrobiologie“ (E166.53) 2011 - 2018
- Leiterin des Forschungsbereichs „Biotechnologie und Mikrobiologie“ (E166.5) von Oktober 2013 bis Februar 2016
- Leiterin der Sammlung industrieller Mikroorganismen der TU Wien (TU Collection of Industrial Microorganisms, TUCIM; <http://www.vt.tuwien.ac.at/tucim/>)
- 2014, Mitarbeit bei der “Forschungs- und Transfersupport Förderberatung und Wirtschaftskooperationen“ der TU Wien zur Entwicklung von *F&E Profilen*.
- Oktober 2014, Teilnahme am *E166 Integration Workshop*, Seminarhotel Groß Enzersdorf – Hotel am Sachsendang, Groß-Enzersdorf, Österreich
- 2012 – 2018, *Technik im Kindergarten Workshop*
- 2015, Hauptmitglied als Mittelbauvertreter in der Berufungskommission „Biochemische Technologie“, TU WIEN
- 2015, Ersatzmitglieder (Mittelbau) in der Habilitationskommission Dr.techn. Oliver SPADIUT. Fachgebiet: "Biotechnologie (Biotechnology)"



- 2015, Hauptmitglied (Mittelbau) in der Habilitationskommission Dr. Astrid Mach-Aigner. Fachgebiet: „Synthetische Biologie (Synthetic Biology)“
- April 2016, organisierte und koordinierte die TU Wien Station „Angewandte Mikrobiologie für Industrie und Pflanzenschutz“ der „Langen Nacht Der Forschung.“
- 2018, Hauptmitglied als Mittelbauvertreter in der Berufungskommission „Multimodal Bioanalytics“, TU WIEN

### SELECTED PUBLIC RELATION ACTIVITIES

- TU Wien Presseaussendung 04.11.2013: Großer Erfolg für Bio-Projekte der TU Wien
- Frauespuren TU Wien, Frauespuren heute, Professorinnen, Irina Druzhinina
- Project "Technical and natural science in playschool", "Science in Kindergarten 2"
- TU Wien Presseaussendung 70 / 2011
- ScienceDaily (Oct. 31, 2011) Mould Fungi Can Cure Plants
- TU Wien Presseaussendung 44 / 2007;
- „Der Standard“ Geistesblitz: Die Schwammerlsucherin, Redaktion, 19. Februar 2008, 20:36
- „Die Presse“ Altes Wissen von den Ameisen lernen, April 23, 2016

### LANGUAGES

English (fluent), German (sufficient understanding and speaking), Chinese (basic familiarity), Russian (native)

### PERSONAL INFO

Name as in the passport:	<b>Dr. rer. nat. Irina Druzhinina</b>
Date and place of birth:	16 May 1974, Moscow, Russia (USSR)
Current Residence:	Nanjing, China since 2019
Citizenship:	Austrian
Family status:	divirced, one son (09.2007)

### HOBBIES

Natural history and naturalism, modern didactics, across Eurasia cultural comparisons, photography, essays (in Russian [www.druzhinina.com](http://www.druzhinina.com)), sociopsychology, fine art, science theory, anthropology and human evolution, follower of the International Atheistic Alliance (AAI), gardening and pets.


### REFERENCES CAN BE OBTAINED FROM

- Prof. Dr. Christian P. **Kubicek**, TU Wien, Vienna, Austria, peter.kubicek@tuwien.ac.at
- Prof. Dr. Robert L. **Mach**, TU Wien, Vienna, Austria, robert.mach@tuwien.ac.at
- Prof. Dr. Igor **Grigoriev**, JGI DOE, Berkeley, USA, ivgrigoriev@lbl.gov
- Prof. Dr. Lei **Cai**, Chinese Academy of Science, Beijing, China, cail@im.ac.cn
- Prof. Dr. Harold **Drake**, University of Bayreuth, Bayreuth, Germany, AEM Editor in Chief 2011 – 2021, hld@uni-bayreuth.de
- Prof. Dr. Oded **Yarden**, University of Jerusalem, Jerusalem, Israel, oded.yarden@mail.huji.ac.il

## PUBLICATIONS OF DR. IRINA S. DRUZHININA

The complete lists can be seen at

The most cited publications ([Google Scholar](#))



**Irina S. Druzhinina**

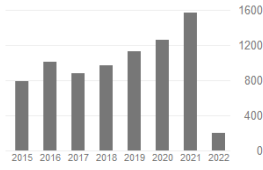
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Verified email at njau.edu.cn - [Homepage](#)

Fungal biology evolution speciation fungal genomics fitness

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	All	Since 2017
Citations	11430	6054
h-index	61	44
i10-index	124	111



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13 articles	79 articles
not available	available

Based on funding mandates

TITLE	CITED BY	YEAR
<input type="checkbox"/> <b>Trichoderma: the genomics of opportunistic success</b> IS Druzhinina, V Seidl-Seiboth, A Herrera-Estrella, BA Horwitz, ... Nature Reviews Microbiology 9 (10), 749-759	846	2011
<input type="checkbox"/> <b>Comparative genome sequence analysis underscores mycoparasitism as the ancestral life style of Trichoderma</b> CP Kubicek, A Herrera-Estrella, V Seidl-Seiboth, DA Martinez, ... Genome biology 12 (4), 1-15	572	2011
<input type="checkbox"/> <b>An oligonucleotide barcode for species identification in Trichoderma and Hypocrea</b> IS Druzhinina, AG Kopchinskiy, M Komoń, J Bissett, G Szakacs, ... Fungal Genetics and Biology 42 (10), 813-828	517	2005
<input type="checkbox"/> <b>The Amsterdam declaration on fungal nomenclature</b> DL Hawksworth, PW Crous, SA Redhead, DR Reynolds, RA Samson, ... IMA fungus 2 (1), 105-111	390	2011
<input type="checkbox"/> <b>Species concepts and biodiversity in Trichoderma and Hypocrea: from aggregate species to species clusters?</b> I Druzhinina, CP Kubicek Journal of Zhejiang University. Science. B 6 (2), 100	312	2005

## PEER-REVIEWED RESEARCH ARTICLES

**(Key publications are highlighted)**

Chen S, Daly P, Zhou D, Li J, Wang X, Deng S, Feng H, Wang C, Sheikh T, Chen Y, Xue T, Cai F, Wei L, **Druzhinina IS** Engineering microbial agents for biological control of plant diseases caused by *Pythium*: recent achievements versus challenges. *Revised to Fungal Biology Reviews*

- Wijayawardene NN, Phillips AJL, Pereira DS, Dai DQ, Aptroot A, Monteiro JS, **Druzhinina IS**, Cai F, Fan X, Selbmann L, Coleine C, Castañeda-Ruiz RF, Kukwa M, Flakus A, Fiuza PO, Kirk PM, Rajesh Kumar KC, Ieperuma Arachchi IS, Suwannarach N, Tang LZ, Boekhout T, Tan CS, Jayasinghe RPPK, Thines M (2022) Forecasting the number of species of asexually reproducing fungi (Ascomycota and Basidiomycota). **Fungal Diversity** (accepted)
- Gortikov M, Wang Z, Steindorff AS, Grigoriev IV, **Druzhinina IS**, Townsend JP, Yarden O (2022) Sequencing and Analysis of the Entire Genome of the Mycoparasitic Bioeffector Fungus *Trichoderma asperelloides* Strain T 203 (Hypocreales) **Microbiology Resource Announcement** DOI: <https://doi.org/10.1128/mra.00995-21>
- Daly P, Chen S, Xue T, Li J, Sheikh TMM, Zhang Q, Wang X, Zhang J, Fitzpatrick DA, McGowan J, Shi X, Deng S, Jiu M, Zhou D, **Druzhinina IS**, Wei L. (2021). Dual-Transcriptomic, Microscopic, and Biocontrol Analyses of the Interaction Between the Bioeffector *Pythium oligandrum* and the Pythium Soft-Rot of Ginger Pathogen *Pythium myriotylum*. **Frontiers in Microbiology**, 12, 765872-765872.
- Cai F, Zhao Z, Gao R, Chen P, Ding M, Jiang S, Fu Z, Xu P, Chenthamara K, Shen Q, Bayram Akcapinar G, **Druzhinina IS** (2021) The pleiotropic functions of Intracellular hydrophobins in aerial hyphae and fungal spores. **PLoS Genet** 17(11): e1009924. <https://doi.org/10.1371/journal.pgen.1009924>
- Yuan Z, Wu Q, Xu L, **Druzhinina IS**, Stukenbrock EH, Nieuwenhuis BPS, Zhong Z, Liu ZZ, Wang X, Cai F, Kubicek CP, Shan X, Wang J, Shi G, Peng L, and FM Martin The genomic landscape in a relict fir-associated fungus reveals rapid convergent adaptation towards endophytism, **The ISME Journal**, *in press*
- Daly P, Cai F, Kubicek CP, Jiang S, Grujic M, Rahimi MJ, Sheteiwy MS, Giles R, Riaz A, de Vries RP, Bayram Akcapinar G, Wei L, **Druzhinina IS** 2021 From lignocellulose to plastics: knowledge transfer on the degradation approaches by fungi. **Biotechnology Advances**, DOI: [10.1016/j.biotechadv.2021.107770](https://doi.org/10.1016/j.biotechadv.2021.107770)

7. Cai F, **Druzhinina IS 2021** In honor of John Bissett: Authoritative guidelines on molecular identification of *Trichoderma*. **Fungal Diversity**. doi: 10.1007/s13225-020-00464-4
8. Yuan Z, **Druzhinina IS**, Gibbons JG, Zhong Z, de Peer YV, Rodriguez RJ, Liu Z, Wang X, Wei H, Wu Q, Wang J, Shi G, Cai F, Peng L, Martin FM. **2021** Divergence of a genomic island leads to the evolution of melanization in a halophyte root fungus. **The ISME Journal**, <https://doi.org/10.1038/s41396-021-01023-8>
9. Lücking, R, Aime, MC, Robbertse, B, Miller, AN, Aoki, T, Ariyawansa, HA, Cardinali, G, Crous, PW, **Druzhinina, IS**, Geiser, DM, Hawksworth, DL, Hyde, KD, Irinyi, L, Jeewon, R, Johnston, PR, Kirk, PM, Malosso, E, May, TW, Meyer, W, Nilsson, HR, Öpik, M, Robert, V, Stadler, M, Thines, M, Vu, D, Yurkov, AM, Zhang, N and Schoch, CL. **2021** Fungal taxonomy and sequence-based nomenclature. **Nature Microbiology**, <https://doi.org/10.1038/s41564-021-00888-x>
10. Brandstaetter C, Fricko N, Rahimi MJ, Fellner J, Ecker-Lala W & **Druzhinina IS. 2021**The microbial metabolic activity on carbohydrates and polymers impact the biodegradability of landfilled solid waste. **Biodegradation** . <https://doi.org/10.1007/s10532-021-09967-6>
11. Peng L, Shan X, Yang Z, Wang Z, **Druzhinina IS**, Pan X, Jin W, He X, Wang X, Zhang X, Martin FM, Yuan Y. **2021** Facultative symbiosis with a saprotrophic soil fungus promotes potassium uptake in American sweetgum trees. **Plant, Cell & Environment**, DOI: 10.1111/pce.14053
12. Zhao Z, Cai F, Gao R, Ding M, Jiang S, Chen P J, Pang G, Chenthamara K, Shen Q, Bayram-Akcapinar G, **Druzhinina S I. 2021**. At least three families of hyphosphere small secreted cysteine-rich proteins can optimize surface properties to a moderately hydrophilic state suitable for fungal attachment. **Environmental Microbiology**. doi: 10.1111/1462-2920.15413
13. van Bohemen AI, Ruiz N, Zalouk-Vergnoux A, Michaud A, Robiou du Pont T, **Druzhinina IS**, Atanasova L, Prado S, Bodo B, Meslet-Cladiere L, Cochereau B, Bastide F, Maslard C, Marchi M, Guillemette T, Pouchus YF **2021** Pentadecaibins I–V: 15-Residue peptaibols produced by a marine-derived *Trichoderma* sp. of the *Harzianum* clade, **Journal of Natural Products** doi: 10.1021/acs.jnatprod.0c01355
14. Kredics L, Naeimi S, Hatvani L, Vágvölgyi C, Cai F, **Druzhinina IS**, and Manczinger L. **2021** The Good, the Bad and the Ugly’ in the shades of green: the genus *Trichoderma* in the spotlight. **Indian Phytopathology**, <https://doi.org/10.1007/s42360-021-00352-0>
15. Ding MY, Chen W, Ma XC, Lv BW, Jiang SQ, Yu YN, Rahimi MJ, Gao RW, Zhao Z, Cai F, **Druzhinina IS** (2020) Emerging salt marshes as a source of *Trichoderma arenarium* sp. nov. and other fungal bio effectors for bio saline agriculture. **Journal of Applied Microbiology** 130: 179–195. doi:10.1111/jam.14751
16. Gao R, Ding M, Jiang S, Zhao Z, Chenthamara K, Shen Q, Cai F, **Druzhinina IS** (2020) The Evolutionary and Functional Paradox of Cerato-platanins in Fungi. **Applied and Environmental Microbiology** 86 (13):e00696-00620. doi:10.1128/AEM.00696-20
17. Yuan Z, **Druzhinina IS**, Wang X, Zhang X, Peng L, Labbé J (2020) Insight into a highly polymorphic endophyte isolated from the roots of the halophytic seepweed *Suaeda salsa*: *Laburnicola rhizohalophila* sp. nov. (Didymosphaeriaceae, Pleosporales). **Fungal Biology**, 124, 327-337 <https://doi.org/10.1016/j.funbio.2019.10.001>.
18. Hoenigsberger M, Pretzer C, Rahimi MJ, Kopchinskiy AG, Parich A, Laciny A, Metscher B, Chan CM, Lim LBL, Salim KA, Zettel H, **Druzhinina IS**, Schuhmacher R (2020) Strong antimicrobial and low insecticidal activity of mandibular gland reservoir content in Bornean “exploding ants” *Colobopsis explodens* Laciny & Zettel, 2018 (Hymenoptera: Formicidae). doi:10.25849/Myrmecological News 030:201
19. Cai F, Gao R, Zhao Z, Ding M, Jiang S, Yagtu C, Zhu H, Zhang J, Ebner T, Mayrhofer-Reinhartshuber M, Kainz P, Chenthamara K, Akcapinar GB, Shen Q, **Druzhinina IS 2020** Evolutionary compromises in fungal fitness: hydrophobins can hinder the adverse dispersal of conidiospores and challenge their survival. **The ISME Journal** 14 (10):2610-2624. doi:10.1038/s41396-020-0709-0
20. Selbmann L, Benkő Z, Coleine C, de Hoog S, Donati C, **Druzhinina I**, Emri T, Ettinger CL, Gladfelter AS, Gorbushina AA, Grigoriev IV, Grube M, Gunde-Cimerman N, Karányi ZÁ, Kocsis B, Kubressoian T, Miklós I, Miskei M, Muggia L, Northen T, Novak-Babič M, Pennacchio C, Pfliegler



- WP, Pòcsi I, Prigione V, Riquelme M, Segata N, Schumacher J, Shelest E, Sterflinger K, Tessei D, U'Ren JM, Varese GC, Vázquez-Campos X, Vicente VA, Souza EM, Zalar P, Walker AK, Stajich JE. (2020) Shed Light in the DaRk LineagES of the Fungal Tree of Life—STRES. **Life**. 10(12):362. <https://doi.org/10.3390/life10120362>
21. Lücking R, Aime MC, Robbertse B, Miller AN, Ariyawansa HA, Aoki T, Cardinali G, Crous PW, **Druzhinina IS**, Geiser DM, Hawksworth DL, Hyde KD, Irinyi L, Jeewon R, Johnston PR, Kirk PM, Malosso E, May TW, Meyer W, Öpik M, Robert V, Stadler M, Thines M, Vu D, Yurkov AM, Zhang N, Schoch CL (2020) Unambiguous identification of fungi: where do we stand and how accurate and precise is fungal DNA barcoding? **IMA Fungus** 11 (1):14. doi:10.1186/s43008-020-00033-z
22. Pérez-Llano Y, Rodríguez-Pupo EC, **Druzhinina IS**, Chenthamara K, Cai F, Gunde-Cimerman N, Zalar P, Gostinčar C, Kostanjšek R, Folch-Mallol JL, Batista-García RA, Sánchez-Carbente MdR (2020) Stress Reshapes the Physiological Response of Halophile Fungi to Salinity. **Cells** 9 (3):525. doi:10.3390/cells9030525
23. Andersson MA, Salo J, Kedves O, Kredics L, Druzhinina I, Kurnitski J, Salonen H. Bioreactivity, Guttation and Agents Influencing Surface Tension of Water Emitted by Actively Growing Indoor Mould Isolates. **Microorganisms**. 2020; 8(12):1940. <https://doi.org/10.3390/microorganisms8121940>
24. Wijayawardene, N.N., Hyde, K., Dai, D., Tang, L., Aptroot, A., Ruíz, R.C., **Druzhinina, I.S.**, Cai, F., Ekanayaka, A.H., Erdoğdu, M., Fiuza, P.O., Gentekaki, E., Goto, B.T., Haelewaters, D., Hongsanan, S., Jeewon, R., Kirk, P., Jayalal, R., Karunarathna, S.C., Wanasinghe, D.N., Lumbsch, H.T., Madrid, H., Maharachchikumbura, S., Monteiro, J.S., Shivaprakash, N., Pfliegler, W.P., Phillips, A.J., Saxena, R.K., Stadler, M., Tian, Q., Tokarev, Y.S., Tsurykau, A., Ertz, D., Lee, H.B., Etayo, J., Vizzini, A., Jones, E., Lin, C.G., Li, W., Dai, Y., Fan, X., McKenzie, E., Shivas, R.G., Hustad, V., Leontyev, D., Hoog, G.S., Niskanen, T., Boekhout, T., Gaya, E., Thines, M., & Péter, P.V. (2020) A dynamic portal for a community-driven, continuously updated classification of Fungi and fungus-like organisms: outlineoffungi.org. **Mycosphere** 11 (1):1514-1526. doi:10.5943/mycosphere/11/1/11
25. Grujić M, Dojnov B, Potočnik I, Atanasova L, Duduk B, Srebotnik E, **Druzhinina IS**, Kubicek CP, Vujčić Z (2019) Superior cellulolytic activity of *Trichoderma guizhouense* on raw wheat straw. **World Journal of Microbiology and Biotechnology** 35 (12):194. doi:10.1007/s11274-019-2774-y
26. Hatvani L, Homa M, Chenthamara K, Cai F, Kocsubé S, Atanasova L, Mlinaric-Missoni E, Manikandan P, Revathi R, Dóczy I, Bogáts G, Narendran V, Büchner R, Vágvölgyi C, **Druzhinina IS**, Kredics L (2019) Agricultural systems as potential sources of emerging human mycoses caused by *Trichoderma*: a successful, common phylotype of *Trichoderma longibrachiatum* in the frontline. **FEMS Microbiology Letters** 366 (21):fnz246. doi:10.1093/femsle/fnz246
27. Hoenigsberger M, Kopchinskiy A, Bueschl C, Parich A, Laciny A, Zettel H, Salim K, Lim L, **Druzhinina I**, Schuhmacher R (2019) Volatiles from the Mandibular Gland Reservoir Content of *Colobopsis explodens* Laciny and Zettel, 2018, Worker Ants (Hymenoptera: Formicidae). **Molecules** 24 (19):3468. doi:10.3390/molecules24193468
28. Kubicek CP, Steindorff AS, Chenthamara K, Manganiello G, Henrissat B, Zhang J, Cai F, Kopchinskiy AG, Kubicek EM, Kuo A, Baroncelli R, Sarrocco S, Noronha EF, Vannacci G, Shen Q, Grigoriev IV, **Druzhinina IS** (2019) Evolution and comparative genomics of the most common *Trichoderma* species. **BMC Genomics** 20 (1):485. doi:10.1186/s12864-019-5680-7
29. Laciny A, Nemeschkal HL, Zettel H, Metscher B, **Druzhinina IS** (2019) Caste-specific morphological modularity in the ant tribe *Camponotini* (Hymenoptera, Formicidae). **BMC Zoology** 4 (1):9. doi:10.1186/s40850-019-0048-7
30. Marik T, Tyagi C, Balázs D, Urbán P, Szepesi Á, Bakacsy L, Endre G, Rakk D, Szekeres A, Andersson MA, Salonen H, **Druzhinina IS**, Vágvölgyi C, Kredics L (2019) Structural diversity and bioactivities of peptaibol compounds from the *Longibrachiatum* clade of the filamentous fungal genus *Trichoderma*. **Frontiers in Microbiology** doi:10.3389/fmicb.2019.01434
31. Zhang J, Miao Y, Rahimi MJ, Zhu H, Steindorff A, Schiessler S, Cai F, Pang G, Chenthamara K, Xu Y, Kubicek CP, Shen Q, **Druzhinina IS** (2019) Guttation capsules containing hydrogen peroxide: an evolutionarily conserved NADPH oxidase gains a role in wars between related fungi. **Environmental Microbiology** 21 (8):2644-2658. doi:10.1111/1462-2920.14575

32. Chadha S, Mehetre ST, Bansal R, Kuo A, Aerts A, Grigoriev IV, **Druzhinina IS**, Mukherjee PK (2018) Genome-wide analysis of cytochrome P450s of *Trichoderma* spp.: annotation and evolutionary relationships. **Fungal Biology and Biotechnology** 5 (1):12. doi:10.1186/s40694-018-0056-3
33. **Druzhinina IS**, Chenthamara K, Zhang J, Atanasova L, Yang D, Miao Y, Rahimi MJ, Grujic M, Cai F, Pourmehdi S, Salim KA, Pretzer C, Kopchinskiy AG, Henrissat B, Kuo A, Hundley H, Wang M, Aerts A, Salamov A, Lipzen A, LaButti K, Barry K, Grigoriev IV, Shen Q, Kubicek CP (2018) Massive lateral transfer of genes encoding plant cell wall-degrading enzymes to the mycoparasitic fungus *Trichoderma* from its plant-associated hosts. **PLOS Genetics** 14 (4):e1007322. doi:10.1371/journal.pgen.1007322
34. du Plessis IL, **Druzhinina IS**, Atanasova L, Yarden O, Jacobs K (2018) The diversity of *Trichoderma* species from soil in South Africa, with five new additions. **Mycologia** 110 (3):559-583. doi:10.1080/00275514.2018.1463059
35. Hoenigsberger M, Kopchinskiy AG, Parich A, Hiller K, Laciny A, Zettel H, Lim LBL, Salim KA, **Druzhinina IS**, Schuhmacher R (2018) Isolation of mandibular gland reservoir contents from Bornean 'exploding ants' (formicidae) for volatilome analysis by gc-ms and metabolite detector. **JOVE** (138):57652. doi:10.3791/57652
36. Kamravamanesh D, Kovacs T, Pflügl S, **Druzhinina I**, Kroll P, Lackner M, Herwig C (2018) Increased poly- $\beta$ -hydroxybutyrate production from carbon dioxide in randomly mutated cells of cyanobacterial strain *Synechocystis* sp. PCC 6714: Mutant generation and characterization. **Bioresource Technology** 266:34-44. doi:10.1016/j.biortech.2018.06.057
37. Laciny A, Zettel H, Kopchinskiy A, Pretzer C, Pal A, Abu Salim K, Javad Rahimi M, Hoenigsberger M, Lim L, Jaitrong W, **Druzhinina IS** (2018) *Colobopsis explodens* sp. n., model species for studies on "exploding ants" (Hymenoptera, Formicidae), with biological notes and first illustrations of males of the *Colobopsis cylindrica* group. **Zookeys** 751:1-40. doi:10.3897/zookeys.751.22661
38. Zettel H, Laciny A, Weeyawat J, Syaokani S, Kopchinskiy A, **Druzhinina IS** (2018) Evidence of predation in two species of the *Colobopsis cylindrica* group (Hymenoptera: Formicidae: Camponotini). **Asian Myrmecology** 10: e010011 (1-11) doi:10.20362/AM.010011
39. **Druzhinina IS**, Kubicek CP (2017) Genetic engineering of *Trichoderma reesei* cellulases and their production. **Microbial Biotechnology** 10 (6):1485-1499. doi:10.1111/1751-7915.12726
40. Gaskell J, Kersten P, Larrondo LF, Canessa P, Martinez D, Hibbett D, Schmoll M, Kubicek CP, Martinez AT, Yadav J, Master E, Magnuson JK, Yaver D, Berka R, Lail K, Chen C, LaButti K, Nolan M, Lipzen A, Aerts A, Riley R, Barry K, Henrissat B, Blanchette R, Grigoriev IV, Cullen D (2017) Draft genome sequence of a monokaryotic model brown-rot fungus *Postia (Rhodonia) placenta* SB12. **Genomics Data** 14:21-23. doi:10.1016/j.gdata.2017.08.003
41. Laciny A, Zettel H, Metscher B, Kamariah AS, Kopchinskiy A, **Druzhinina IS** (2017) Morphological variation and mermithism in female castes of *Colobopsis* sp. nrSA, a Bornean "exploding ant" of the *Colobopsis cylindrica* group (Hymenoptera: Formicidae). **Myrmecological News** 24:91-106
42. Marik T, Urbán P, Tyagi C, Szekeres A, Leitgeb B, Vágvölgyi M, Manczinger L, **Druzhinina IS**, Vágvölgyi C, Kredics L (2017) Diversity profile and dynamics of peptaibols produced by green mould *Trichoderma* species in interactions with their hosts *Agaricus bisporus* and *Pleurotus ostreatus*. **Chemistry and Biodiversity** 14 (6):e1700033. doi:10.1002/cbdv.201700033
43. Miao Y, Li P, Li G, Liu D, **Druzhinina IS**, Kubicek CP, Shen Q, Zhang R (2017) Two degradation strategies for overcoming the recalcitrance of natural lignocellulosic xylan by polysaccharides-binding GH10 and GH11 xylanases of filamentous fungi: Lignocellulosic xylan degradation strategies. **Environmental Microbiology** 19 (3):1054-1064. doi:10.1111/1462-2920.13614
44. Pretzer C, **Druzhinina IS**, Amaro C, Benediktsdóttir E, Hedenström I, Hervio-Heath D, Huhulescu S, Schets FM, Farnleitner AH, Kirschner AKT (2017) High genetic diversity of *Vibrio cholerae* in the European lake Neusiedler See is associated with intensive recombination in the reed habitat and the long-distance transfer of strains. **Environmental Microbiology** 19 (1):328-344. doi:10.1111/1462-2920.13612
45. Przulucka A, Akcapinar GB, Bonazza K, Mello-de-Sousa TM, Mach-Aigner AR, Lobanov V, Grothe H, Kubicek CP, Reimhult E, **Druzhinina IS** (2017) Comparative physiochemical analysis of

- hydrophobins produced in *Escherichia coli* and *Pichia pastoris*. **Colloids and Surfaces B: Biointerfaces** 159:913-923. doi:10.1016/j.colsurfb.2017.08.058
46. Przylucka A, Akcapinar GB, Chenthamara K, Cai F, Grujic M, Karpenko J, Livoi M, Shen Q, Kubicek CP, **Druzhinina IS** (2017) HFB7 – A novel orphan hydrophobin of the *Harzianum* and *Virens* clades of *Trichoderma*, is involved in response to biotic and abiotic stresses. **Fungal Genetics and Biology** 102:63-76. doi:10.1016/j.fgb.2017.01.002
47. Qin Y, Pan X, Kubicek C, **Druzhinina I**, Chenthamara K, Labbé J, Yuan Z (2017) Diverse plant-associated pleosporalean fungi from saline areas: ecological tolerance and nitrogen-status dependent effects on plant growth. **Frontiers in Microbiology** 8. doi:10.3389/fmicb.2017.00158
48. Davidson DW, Kopchinskiy A, Salim KA, Grujic M, Lim L, Mei CC, Jones TH, Casamatta D, Atanasova L, **Druzhinina IS** (2016) Nutrition of Borneo's 'exploding' ants (Hymenoptera: Formicidae: *Colobopsis*): a preliminary assessment. **Biotropica** 48 (4):518-527. doi:10.1111/btp.12323
49. de Man TJB, Stajich JE, Kubicek CP, Teiling C, Chenthamara K, Atanasova L, **Druzhinina IS**, Levenkova N, Birnbaum SSL, Barribeau SM, Bozick BA, Suen G, Currie CR, Gerardo NM (2016) Small genome of the fungus *Escovopsis weberi*, a specialized disease agent of ant agriculture. **Proceedings of the National Academy of Sciences** 113 (13):3567-3572. doi:10.1073/pnas.1518501113
50. **Druzhinina IS**, Kopchinskiy AG, Kubicek EM, Kubicek CP (2016) A complete annotation of the chromosomes of the cellulase producer *Trichoderma reesei* provides insights in gene clusters, their expression and reveals genes required for fitness. **Biotechnology for Biofuels** 9 (1):75. doi:10.1186/s13068-016-0488-z
51. **Druzhinina IS**, Kubicek CP (2016) Familiar Stranger. Ecological Genomics of the Model Saprotroph and Industrial Enzyme Producer *Trichoderma reesei* Breaks the Stereotypes In: Advances in Applied Microbiology, **Advance in Applied Microbiology** 2016;95:69-147. doi: 10.1016/bs.aambs.2016.02.001.
52. **Druzhinina IS**, Kubicek EM, Kubicek CP (2016) Several steps of lateral gene transfer followed by events of 'birth-and-death' evolution shaped a fungal sorbicillinoid biosynthetic gene cluster. **BMC Evolutionary Biology** 16 (1):269. doi:10.1186/s12862-016-0834-6
53. Laciny A, Zettel H, **Druzhinina I** (2016) Workers, soldiers, and gynes – morphometric characterization and description of the female castes of *Camponotus singularis* (Smith, 1858) (Hymenoptera, Formicidae). **DEZ** 63 (2):183-193. doi:10.3897/dez.63.9435
54. Qin Y, **Druzhinina IS**, Pan X, Yuan Z (2016) Microbially mediated plant salt tolerance and microbiome-based solutions for saline agriculture. **Biotechnology Advances** 34 (7):1245-1259. doi:10.1016/j.biotechadv.2016.08.005
55. Yuan Z, **Druzhinina IS**, Labbé J, Redman R, Qin Y, Rodriguez R, Zhang C, Tuskan GA, Lin F (2016) Specialized Microbiome of a Halophyte and its Role in Helping Non-Host Plants to Withstand Salinity. **Scientific Reports**: 2016 Aug 30;6:32467. doi: 10.1038/srep32467.
56. Zhang N, Yang D, Kendall JRA, Borriss R, **Druzhinina IS**, Kubicek CP, Shen Q, Zhang R (2016) Comparative Genomic Analysis of *Bacillus amyloliquefaciens* and *Bacillus subtilis* Reveals Evolutional Traits for Adaptation to Plant-Associated Habitats. **Frontiers in Microbiology** 7. doi:10.3389/fmicb.2016.02039
57. Bonazza K, Gaderer R, Neudl S, Przylucka A, Allmaier G, **Druzhinina IS**, Grothe H, Friedbacher G, Seidl-Seiboth V (2015) The fungal cerato-platanin protein EPL1 forms highly ordered layers at hydrophobic/hydrophilic interfaces. **Soft Matter** 11 (9):1723-1732. doi:10.1039/C4SM02389G
58. Ribitsch D, Herrero Acero E, Przylucka A, Zitzenbacher S, Marold A, Gamerith C, Tscheließnig R, Jungbauer A, Rennhofer H, Lichtenegger H, Amenitsch H, Bonazza K, Kubicek CP, **Druzhinina IS**, Guebitz GM (2015) Enhanced Cutinase-Catalyzed Hydrolysis of Polyethylene Terephthalate by Covalent Fusion to Hydrophobins. **Applied and Environmental Microbiology** 81 (11):3586-3592. doi:10.1128/AEM.04111-14
59. Yang D, Pomraning K, Kopchinskiy A, Karimi Aghcheh R, Atanasova L, Chenthamara K, Baker SE, Zhang R, Shen Q, Freitag M, Kubicek CP, **Druzhinina IS** (2015) Genome sequence and annotation of *Trichoderma parareesei*, the ancestor of the cellulase producer *Trichoderma reesei*. **Genome Announcements** 3 (4):e00885-00815. doi:10.1128/genomeA.00885-15
60. Zhang J, Akcapinar GB, Atanasova L, Rahimi MJ, Przylucka A, Yang D, Kubicek CP, Zhang R, Shen Q, **Druzhinina IS** (2015) The neutral metallopeptidase NMP1 of *Trichoderma guizhouense* is

- required for mycotrophy and selfdefence. **Environmental Microbiology**: <https://doi.org/10.1111/1462-2920.12966>
61. Hori C, Ishida T, Igarashi K, Samejima M, Suzuki H, Master E, Ferreira P, Ruiz-Dueñas FJ, Held B, Canessa P, Larrondo LF, Schmoll M, **Druzhinina IS**, Kubicek CP, Gaskell JA, Kersten P, St. John F, Glasner J, Sabat G, Splinter BonDurant S, Syed K, Yadav J, Mgbeahuruike AC, Kovalchuk A, Asiegbu FO, Lackner G, Hoffmeister D, Rencoret J, Gutiérrez A, Sun H, Lindquist E, Barry K, Riley R, Grigoriev IV, Henrissat B, Kües U, Berka RM, Martínez AT, Covert SF, Blanchette RA, Cullen D (2014) Analysis of the *Phlebiopsis gigantea* Genome, Transcriptome and Secretome Provides Insight into Its Pioneer Colonization Strategies of Wood. **PLoS Genetics** 10 (12):e1004759. doi:10.1371/journal.pgen.1004759
  62. Karimi Aghcheh R, Németh Z, Atanasova L, Fekete E, Paholcsek M, Sándor E, Aquino B, **Druzhinina IS**, Karaffa L, Kubicek CP (2014) The VELVET A Orthologue VEL1 of *Trichoderma reesei* Regulates Fungal Development and Is Essential for Cellulase Gene Expression. **PLoS ONE** 9 (11):e112799. doi:10.1371/journal.pone.0112799
  63. Pfliegler WP, Atanasova L, Karanyicz E, Sipiczki M, Bond U, **Druzhinina IS**, Sterflinger K, Lopandic K (2014) Generation of New Genotypic and Phenotypic Features in Artificial and Natural Yeast Hybrids. **Food Technology and Biotechnology** 52(1) 46–57.
  64. Aghcheh RK, **Druzhinina IS**, Kubicek CP (2013) The putative protein methyltransferase LAE1 of *Trichoderma atroviride* is a key regulator of asexual development and mycoparasitism. **PLoS ONE** 8 (6):e67144. doi:10.1371/journal.pone.0067144
  65. Atanasova L, Crom SL, Gruber S, Coulpier F, Seidl-Seiboth V, Kubicek CP, **Druzhinina IS** (2013) Comparative transcriptomics reveals different strategies of *Trichoderma mycoparasitism*. **BMC Genomics** 14 (1):121. doi:10.1186/1471-2164-14-121
  66. Atanasova L, Knox BP, Kubicek CP, **Druzhinina IS**, Baker SE (2013) The polyketide synthase gene *pkS4* of *Trichoderma reesei* provides pigmentation and stress resistance. **Eukaryotic Cell** 12 (11):1499-1508. doi:10.1128/EC.00103-13
  67. Erper I, Turkkan M, Atanasova L, **Druzhinina IS**, Karaca GH, Cebi-Killcoglu M (2013) Integrated assessment of the mycoparasitic and phytostimulating properties of *Trichoderma* strains against *Rhizoctonia solani*. **Bulgarian Journal of Agricultural Science** 19(4):737-743
  68. Espino-Rammer L, Ribitsch D, Przylucka A, Marold A, Greimel KJ, Herrero Acero E, Guebitz GM, Kubicek CP, **Druzhinina IS** (2013) Two Novel Class II Hydrophobins from *Trichoderma* spp. Stimulate Enzymatic Hydrolysis of Poly(Ethylene Terephthalate) when Expressed as Fusion Proteins. **Applied and Environmental Microbiology** 79 (14):4230-4238. doi:10.1128/AEM.01132-13
  69. Karaffa L, Coulier L, Fekete E, Overkamp KM, **Druzhinina IS**, Mikus M, Seiboth B, Novák L, Punt PJ, Kubicek CP (2013) The intracellular galactoglycome in *Trichoderma reesei* during growth on lactose. **Applied Microbiology and Biotechnology** 97 (12):5447-5456. doi:10.1007/s00253-012-4667-y
  70. Lehner SM, Atanasova L, Neumann NKN, Krska R, Lemmens M, **Druzhinina IS**, Schuhmacher R (2013) Isotope-Assisted Screening for Iron-Containing Metabolites Reveals a High Degree of Diversity among Known and Unknown Siderophores Produced by *Trichoderma* spp. **Applied and Environmental Microbiology** 79 (1):18-31. doi:10.1128/AEM.02339-12
  71. López-Quintero CA, Atanasova L, Franco-Molano AE, Gams W, Komon-Zelazowska M, Theelen B, Müller WH, Boekhout T, **Druzhinina I** (2013) DNA barcoding survey of *Trichoderma* diversity in soil and litter of the Colombian lowland Amazonian rainforest reveals *Trichoderma strigosellum* sp. nov. and other species. **Antonie van Leeuwenhoek** 104 (5):657-674. doi:10.1007/s10482-013-9975-4
  72. Mulaw T, **Druzhinina I**, Kubicek C, Atanasova L (2013) Novel endophytic *Trichoderma* spp. isolated from healthy *Coffea arabica* roots are capable of controlling coffee tracheomycosis. **Diversity** 5 (4):750-766. doi:10.3390/d5040750
  73. Pummer BG, Atanasova L, Bauer H, Bernardi J, **Druzhinina IS**, Fröhlich-Nowoisky J, Grothe H (2013) Spores of many common airborne fungi reveal no ice nucleation activity in oil immersion freezing experiments. **Biogeosciences** 10 (12):8083-8091. doi:10.5194/bg-10-8083-2013
  74. Degenkolb T, Karimi Aghcheh R, Dieckmann R, Neuhofer T, Baker SE, **Druzhinina IS**, Kubicek CP, Brückner H, von Döhren H (2012) The Production of Multiple Small Peptaibol Families by Single



- 14-Module Peptide Synthetases in *Trichoderma/Hypocrea*. **Chem Biodiversity** 9 (3):499-535. doi:10.1002/cbdv.201100212
75. **Druzhinina** IS, Komoń-Zelazowska M, Ismaiel A, Jaklitsch W, Mullaw T, Samuels GJ, Kubicek CP (2012) Molecular phylogeny and species delimitation in the section *Longibrachiatum* of *Trichoderma*. **Fungal Genetics and Biology** 49 (5):358-368. doi:10.1016/j.fgb.2012.02.004
76. **Druzhinina** IS, Shelest E, Kubicek CP (2012) Novel traits of *Trichoderma* predicted through the analysis of its secretome. **FEMS Microbiology Letters** 337 (1):1-9. doi:10.1111/j.1574-6968.2012.02665.x
77. Friedl MA, **Druzhinina** IS (2012) Taxon-specific metagenomics of *Trichoderma* reveals a narrow community of opportunistic species that regulate each other's development. **Microbiology** 158 (1):69-83. doi:10.1099/mic.0.052555-0
78. Mukherjee PK, Buensanteai N, Moran-Diez ME, **Druzhinina** IS, Kenerley CM (2012) Functional analysis of non-ribosomal peptide synthetases (NRPSs) in *Trichoderma virens* reveals a polyketide synthase (PKS)/NRPS hybrid enzyme involved in the induced systemic resistance response in maize. **Microbiology** 158 (1):155-165. doi:10.1099/mic.0.052159-0
79. Samuels GJ, Ismaiel A, Mulaw TB, Szakacs G, **Druzhinina** IS, Kubicek CP, Jaklitsch WM (2012) The *Longibrachiatum* Clade of *Trichoderma*: a revision with new species. **Fungal Diversity** 55 (1):77-108. doi:10.1007/s13225-012-0152-2
80. **Druzhinina** IS, Seidl-Seiboth V, Herrera-Estrella A, Horwitz BA, Kenerley CM, Monte E, Mukherjee PK, Zeilinger S, Grigoriev IV, Kubicek CP (2011) *Trichoderma*: the genomics of opportunistic success. **Nature Reviews Microbiology** 9 (10):749-759. doi:10.1038/nrmicro2637
81. Gal-Hemed I, Atanasova L, Komoń-Zelazowska M, **Druzhinina** IS, Viterbo A, Yarden O (2011) Marine Isolates of *Trichoderma* spp. as Potential Halotolerant Agents of Biological Control for Arid-Zone Agriculture. **Applied and Environmental Microbiology** 77 (15):5100-5109. doi:10.1128/AEM.00541-11
82. Kubicek CP, Herrera-Estrella A, Seidl-Seiboth V, Martinez DA, **Druzhinina** IS, Thon M, Zeilinger S, Casas-Flores S, Horwitz BA, Mukherjee PK, Mukherjee M, Kredics L, Alcaraz LD, Aerts A, Antal Z, Atanasova L, Cervantes-Badillo MG, Challacombe J, Chertkov O, McCluskey K, Coulpier F, Deshpande N, von Döhren H, Ebbola DJ, Esquivel-Naranjo EU, Fekete E, Flipphi M, Glaser F, Gómez-Rodríguez EY, Gruber S, Han C, Henrissat B, Hermosa R, Hernández-Oñate M, Karaffa L, Kostı I, Le Crom S, Lindquist E, Lucas S, Lübeck M, Lübeck PS, Margeot A, Metz B, Misra M, Nevalainen H, Omann M, Packer N, Perrone G, Uresti-Rivera EE, Salamov A, Schmoll M, Seiboth B, Shapiro H, Sukno S, Tamayo-Ramos JA, Tisch D, Wiest A, Wilkinson HH, Zhang M, Coutinho PM, Kenerley CM, Monte E, Baker SE, Grigoriev IV (2011) Comparative genome sequence analysis underscores mycoparasitism as the ancestral life style of *Trichoderma*. **Genome Biology** 12 (4):R40. doi:10.1186/gb-2011-12-4-r40
83. Atanasova L, **Druzhinina** IS (2010) Global nutrient profiling by Phenotype MicroArrays: a tool complementing genomic and proteomic studies in conidial fungi. **Journal of Zhejiang University Science B** 11 (3):151-168. doi:10.1631/jzus.B1000007
84. Atanasova L, Jaklitsch WM, Komoń-Zelazowska M, Kubicek CP, **Druzhinina** IS (2010) Clonal species *Trichoderma parareesei* sp. nov. likely resembles the ancestor of the cellulase producer *Hypocrea jecorina*/*T. reesei*. **Applied and Environmental Microbiology** 76 (21):7259-7267. doi:10.1128/AEM.01184-10
85. **Druzhinina** IS, Komoń-Zelazowska M, Atanasova L, Seidl V, Kubicek CP (2010) Evolution and Ecophysiology of the Industrial Producer *Hypocrea jecorina* (Anamorph *Trichoderma reesei*) and a New Sympatric Agamospecies Related to It. **PLoS ONE** 5 (2):e9191. doi:10.1371/journal.pone.0009191
86. **Druzhinina** IS, Kubicek CP, Komoń-Zelazowska M, Belayneh Mulaw T, Bissett J (2010) The *Trichoderma harzianum* demon: complex speciation history resulting in coexistence of hypothetical biological species, recent agamospecies and numerous relict lineages. **BMC Evolutionary Biology** 10 (1):94. doi:10.1186/1471-2148-10-94
87. Mulaw TB, C.P. K, **Druzhinina** IS (2010) The rhizosphere of coffee arabica in its native highland forests of Ethiopia provides a niche for a distinguished diversity of *Trichoderma*. **Diversity** 2(4)



88. Paz Z, Komon-Zelazowska M, **Druzhinina** IS, Aveskamp MM, Shnaiderman A, Aluma Y, Carmeli S, Ilan M, Yarden O (2010) Diversity and potential antifungal properties of fungi associated with a Mediterranean sponge. **Fungal Diversity** 42 (1):17-26. doi:10.1007/s13225-010-0020-x
89. Kemptner J, Marchetti-Deschmann M, Mach R, **Druzhinina** IS, Kubicek CP, Allmaier G (2009) Evaluation of matrix-assisted laser desorption/ionization (MALDI) preparation techniques for surface characterization of intact *Fusarium* spores by MALDI linear time-of-flight mass spectrometry. **Rapid Commun Mass Spectrom** 23 (6):877-884. doi:10.1002/rcm.3949
90. Kredics L, Kocsubé S, Nagy L, Komoń-Zelazowska M, Manczinger L, Sajben E, Nagy A, Vágvölgyi C, Kubicek CP, **Druzhinina** IS, Hatvani L (2009) Molecular identification of *Trichoderma* species associated with *Pleurotus ostreatus* and natural substrates of the oyster mushroom. **FEMS Microbiology Letters** 300 (1):58-67. doi:10.1111/j.1574-6968.2009.01765.x
91. Le Crom S, Schackwitz W, Pennacchio L, Magnuson JK, Culley DE, Collett JR, Martin J, **Druzhinina** IS, Mathis H, Monot F, Seiboth B, Cherry B, Rey M, Berka R, Kubicek CP, Baker SE, Margeot A (2009) Tracking the roots of cellulase hyperproduction by the fungus *Trichoderma reesei* using massively parallel DNA sequencing. **Proceedings of the National Academy of Sciences** 106 (38):16151-16156. doi:10.1073/pnas.0905848106
92. Migheli Q, Balmas V, Komoń-Zelazowska M, Scherm B, Fiori S, Kopchinskiy AG, Kubicek CP, **Druzhinina** IS (2009) Soils of a Mediterranean hot spot of biodiversity and endemism (Sardinia, Tyrrhenian Islands) are inhabited by pan-European, invasive species of *Hypocrea/Trichoderma*. **Environmental Microbiology** 11 (1):35-46. doi:10.1111/j.1462-2920.2008.01736.x
93. Mikus M, Hatvani Lrn, Neuhof T, Komoń-Zelazowska M, Dieckmann R, Schwecke T, **Druzhinina** IS, von Döhren H, Kubicek CP (2009) Differential regulation and posttranslational processing of the class ii hydrophobin genes from the biocontrol fungus *Hypocrea atroviridis*. **Applied and Environmental Microbiology** 75 (10):3222-3229. doi:10.1128/AEM.01764-08
94. Zachow C, Berg C, Müller H, Meincke R, Komon-Zelazowska M, **Druzhinina** IS, Kubicek CP, Berg G (2009) Fungal diversity in the rhizosphere of endemic plant species of Tenerife (Canary Islands): relationship to vegetation zones and environmental factors. **The ISME Journal** 3 (1):79-92. doi:10.1038/ismej.2008.87
95. Brunner K, Omann M, Pucher ME, Delic M, Lehner SM, Domnanich P, Kratochwill K, **Druzhinina** I, Denk D, Zeilinger S (2008) *Trichoderma* G protein-coupled receptors: functional characterisation of a cAMP receptor-like protein from *Trichoderma atroviride*. **Current Genetics** 54 (6):283-299. doi:10.1007/s00294-008-0217-7
96. **Druzhinina** IS, Komoń-Zelazowska M, Kredics L, Hatvani L, Antal Z, Belayneh T, Kubicek CP (2008) Alternative reproductive strategies of *Hypocrea orientalis* and genetically close but clonal *Trichoderma longibrachiatum*, both capable of causing invasive mycoses of humans. **Microbiology** 154 (11):3447-3459. doi:10.1099/mic.0.2008/021196-0
97. Friedl MA, Kubicek CP, **Druzhinina** IS (2008) Carbon Source Dependence and Photostimulation of Conidiation in *Hypocrea atroviridis*. **Applied and Environmental Microbiology** 74 (1):245-250. doi:10.1128/AEM.02068-07
98. Friedl MA, Schmoll M, Kubicek CP, **Druzhinina** IS (2008) Photostimulation of *Hypocrea atroviridis* growth occurs due to a cross-talk of carbon metabolism, blue light receptors and response to oxidative stress. **Microbiology** 154(Pt 4):1229-41
99. Jaklitsch WM, Kubicek CP, **Druzhinina** IS (2008) Three European species of *Hypocrea* with reddish brown stromata and green ascospores. **Mycologia** 100 (5):796-815. doi:10.3852/08-039
100. Kubicek CP, Baker SE, Gamauf C, Kenerley CM, **Druzhinina** IS (2008) Purifying selection and birth-and-death evolution in the class II hydrophobin gene families of the ascomycete *Trichoderma/Hypocrea*. **BMC Evolutionary Biology** 8 (1):4. doi:10.1186/1471-2148-8-4
101. Kubicek CP, Komon-Zelazowska M, **Druzhinina** IS (2008) Fungal genus *Hypocrea/Trichoderma*: from barcodes to biodiversity. **J Zhejiang Univ Sci B** 9 (10):753-763. doi:10.1631/jzus.B0860015
102. Seidl V, Gamauf C, **Druzhinina** IS, Seiboth B, Hartl L, Kubicek CP (2008) The *Hypocrea jecorina* (*Trichoderma reesei*) hypercellulolytic mutant RUT C30 lacks a 85 kb (29 gene-encoding) region of the wild-type genome. **BMC Genomics** 9 (1):327. doi:10.1186/1471-2164-9-327

103. Váczy KZ, Sándor E, Karaffa L, Fekete E, Fekete É, Árnayasi M, Czeglédi L, Kövics GJ, **Druzhinina IS**, Kubicek CP (2008) Sexual recombination in the *Botrytis cinerea* populations in Hungarian vineyards. **Phytopathology** 98 (12):1312-1319. doi:10.1094/PHYTO-98-12-1312
104. **Druzhinina IS**, LaFe K, Willinger B, Komoń-Zelazowska M, Ammirati J, Kubicek CP, Rogers JD (2007) An unknown hypocreaceae species isolated from human lung tissue of a patient with non-fatal pulmonary fibrosis. **Clinical Microbiology Newsletter** 29 (23):180-184. doi:10.1016/j.clinmicnews.2007.11.002
105. Hatvani L, Antal Z, Manczinger L, Szekeres A, **Druzhinina IS**, Kubicek CP, Nagy A, Nagy E, Vágvölgyi C, Kredics L (2007) Green mold diseases of *Agaricus* and *Pleurotus* spp. are caused by related but phylogenetically different *Trichoderma* Species. **Phytopathology** 97 (4):532-537. doi:10.1094/PHYTO-97-4-0532
106. Komoń-Zelazowska M, Bissett J, Zafari D, Hatvani L, Manczinger L, Woo S, Lorito M, Kredics L, Kubicek CP, **Druzhinina IS** (2007) Genetically closely related but phenotypically divergent *Trichoderma* species cause green mold disease in oyster mushroom farms worldwide. **Applied and Environmental Microbiology** 73 (22):7415-7426. doi:10.1128/AEM.01059-07
107. Komoń-Zelazowska M, Neuhof T, Dieckmann R, von Döhren H, Herrera-Estrella A, Kubicek CP, **Druzhinina IS** (2007) Formation of Atroviridin by *Hypocrea atroviridis* Is Conidiation Associated and Positively Regulated by Blue Light and the G Protein GNA3. **Eukaryotic Cell** 6 (12):2332-2342. doi:10.1128/EC.00143-07
108. Kubicek CP, Komoń-Zelazowska M, Sándor E, **Druzhinina IS** (2007) Facts and Challenges in the Understanding of the Biosynthesis of Peptaibols by *Trichoderma*. **Chemistry and Biodiversity** 4 (6):1068-1082. doi:10.1002/cbdv.200790097
109. Nagy V, Seidl V, Szakacs G, Komoń-Zelazowska M, Kubicek CP, **Druzhinina IS** (2007) Application of DNA Bar Codes for Screening of Industrially Important Fungi: the Haplotype of *Trichoderma harzianum* Sensu Stricto Indicates Superior Chitinase Formation. **Applied and Environmental Microbiology** 73 (21):7048-7058. doi:10.1128/AEM.00995-07
110. Neuhof T, Dieckmann R, **Druzhinina IS**, Kubicek CP, Nakari-Setälä T, Penttilä M, von Döhren H (2007) Direct identification of hydrophobins and their processing in *Trichoderma* using intact-cell MALDI-TOF MS: *Trichoderma* hydrophobins. **FEBS Journal** 274 (3):841-852. doi:10.1111/j.1742-4658.2007.05636.x
111. Neuhof T, Dieckmann R, **Druzhinina IS**, Kubicek CP, von Döhren H (2007) Intact-cell MALDI-TOF mass spectrometry analysis of peptaibol formation by the genus *Trichoderma/Hypocrea*: can molecular phylogeny of species predict peptaibol structures? **Microbiology** 153 (10):3417-3437. doi:10.1099/mic.0.2007/006692-0
112. Schuster A, Kubicek CP, Friedl MA, **Druzhinina IS**, Schmoll M (2007) Impact of light on *Hypocrea jecorina* and the multiple cellular roles of ENVOY in this process. **BMC Genomics** 8 (1):449. doi:10.1186/1471-2164-8-449
113. Zhang C-l, Liu S-p, Lin F-c, Kubicek CP, **Druzhinina IS** (2007) *Trichoderma taxi* sp. nov., an endophytic fungus from Chinese yew *Taxus mairei*. **FEMS Microbiology Letters** 270 (1):90-96. doi:10.1111/j.1574-6968.2007.00659.x
114. Dela Cruz TEE, Schulz BE, Kubicek CP, **Druzhinina IS** (2006) Carbon source utilization by the marine *Dendryphiella* species *D. arenaria* and *D. salina*. **FEMS Microbiology Ecology** 58 (3):343-353. doi:10.1111/j.1574-6941.2006.00184.x
115. **Druzhinina IS**, Kopchinskiy AG, Kubicek CP (2006) The first 100 *Trichoderma* species characterized by molecular data. **Mycoscience** 47 (2):55-64. doi:10.1007/S10267-006-0279-7
116. **Druzhinina IS**, Schmoll M, Seiboth B, Kubicek CP (2006) Global carbon utilization profiles of wild-type, mutant, and transformant strains of *Hypocrea jecorina*. **Applied and Environmental Microbiology** 72 (3):2126-2133. doi:10.1128/AEM.72.3.2126-2133.2006
117. Jaklitsch WM, Komon M, Kubicek CP, **Druzhinina IS** (2006) *Hypocrea crystalligena* sp. nov., a common European species with a white-spored *Trichoderma* anamorph. **Mycologia** 98(3):499-513
118. Jaklitsch WM, Komon M, Kubicek CP, **Druzhinina IS** (2006) *Hypocrea voglmayrii* sp. nov. from the Austrian Alps represents a new phylogenetic clade in *Hypocrea/Trichoderma*. **Mycologia** 97(6):1365-78

119. Jaklitsch WM, Samuels GJ, Dodd SL, Lu B-S, **Druzhinina IS** (2006) *Hypocrea rufa/Trichoderma viride*: a reassessment, and description of five closely related species with and without warted conidia. **Studies in Mycology** 56:135-177. doi:10.3114/sim.2006.56.04
120. Samuels GJ, Dodd SL, Lu B-S, Petrini O, Schroers H-J, **Druzhinina IS** (2006) The *Trichoderma koningii* aggregate species. **Studies in Mycology** 56:67-133. doi:10.3114/sim.2006.56.03
121. Seidl V, **Druzhinina IS**, Kubicek CP (2006) A screening system for carbon sources enhancing  $\beta$ -N-acetylglucosaminidase formation in *Hypocrea atroviridis* (*Trichoderma atroviride*). **Microbiology** 152 (7):2003-2012. doi:10.1099/mic.0.28897-0
122. **Druzhinina I**, Kubicek CP (2005) Species concepts and biodiversity in *Trichoderma* and *Hypocrea*: from aggregate species to species clusters? **Journal of Zhejiang University Science B** (2):100-112. doi:10.1631/jzus.2005.B0100
123. **Druzhinina IS**, Kopchinskiy AG, Komoń M, Bissett J, Szakacs G, Kubicek CP (2005) An oligonucleotide barcode for species identification in *Trichoderma* and *Hypocrea*. **Fungal Genetics and Biology** 42 (10):813-828. doi:10.1016/j.fgb.2005.06.007
124. Kopchinskiy A, Komoń M, Kubicek CP, **Druzhinina IS** (2005) *TrichoBlast*: A multilocus database for *Trichoderma* and *Hypocrea* identifications. **Mycological Research** 109 (6):658-660. doi:10.1017/S0953756205233397
125. Zhang C-l, **Druzhinina IS**, Kubicek CP, Xu T (2005) *Trichoderma* biodiversity in China: Evidence for a North to South distribution of species in East Asia. **FEMS Microbiology Letters** 251 (2):251-257. doi:10.1016/j.femsle.2005.08.034
126. **Druzhinina I**, Palma-Oliveira JM (2004) Radioactive contamination of wild mushrooms: a cross-cultural risk perception study. **Journal of Environmental Radioactivity** 74 (1-3):83-90. doi:10.1016/j.jenvrad.2004.01.025
127. **Druzhinina IS**, Chaverri P, Fallah P, Kubicek CP, Samuels GJ (2004) *Hypocrea flaviconidia*, a new species from Costa Rica with yellow conidia. **Studies in Mycology**, 50:401-407.
128. Gherbawy Y, **Druzhinina I**, Shaban GM, Wuczkowsky M, Yaser M, El-Naghy MA, Prillinger H-J, Kubicek CP (2004) *Trichoderma* populations from alkaline agricultural soil in the Nile valley, Egypt, consist of only two species. **Mycological Progress** 3 (3):211-218. doi:10.1007/s11557-006-0091-y
129. Kraus GF, **Druzhinina I**, Gams W, Bissett J, Zafari D, Szakacs G, Koptchinski A, Prillinger H, Zare R, Kubicek CP (2004) *Trichoderma brevicompactum* sp. nov. **Mycologia** 96 (5):1059-1073. doi:10.1080/15572536.2005.11832905
130. Lu B, **Druzhinina IS**, Fallah P, Chaverri P, Gradinger C, Kubicek CP, Samuels GJ (2004) *Hypocrea/Trichoderma* species with pachybasium-like conidiophores: teleomorphs for *T. minutisporum* and *T. polysporum* and their newly discovered relatives. **Mycologia** 96(2):310-42
131. Pail M, Peterbauer T, Seiboth B, Hametner C, **Druzhinina I**, Kubicek CP (2004) The metabolic role and evolution of l-arabinitol 4-dehydrogenase of *Hypocrea jecorina*. **European Journal of Biochemistry** 271 (10):1864-1872. doi:10.1111/j.1432-1033.2004.04088.x
132. Bissett J, Szakacs G, Nolan CA, **Druzhinina I**, Gradinger C, Kubicek CP (2003) New species of *Trichoderma* from Asia. **Canadian Journal of Botany** 81 (6):570-586. doi:10.1139/b03-051
133. Kubicek CP, Bissett J, **Druzhinina I**, Kullnig-Gradinger C, Szakacs G (2003) Genetic and metabolic diversity of *Trichoderma*: a case study on South-East Asian isolates. **Fungal Genetics and Biology** 38 (3):310-319. doi:10.1016/S1087-1845(02)00583-2
134. Wuczkowski M, **Druzhinina I**, Gherbawy Y, Klug B, Prillinger H, Kubicek CP (2003) Species pattern and genetic diversity of *Trichoderma* in a mid-European, primeval floodplain-forest. **Microbiological Research** 158 (2):125-133. doi:10.1078/0944-5013-00193
135. **Druzhinina IS**, Insarova ID, Shnyreva AV, D'Yakov YT, Altukhov YP (1997) Homokaryotic mycelial pellets of basidiomycetes: Application to genetic analysis. **Russian Journal of Genetics** 33 (5):521-526

## BOOKS

136. **Advances in Trichoderma Biology and Applications**, (eds) Amaresan, N., Druzhinina I.S., SPRINGER, *in press*
137. **New and Future Developments in Microbial Biotechnology and Bioengineering. Recent Developments in Trichoderma Research**. (ed) Gupta, VK., Zeilinger, S., Singh, HB, **Druzhinina IS**. ELSEVIER, 2020 ISBN: 9780128194539

138. **Biotechnology and Biology of *Trichoderma***, (eds) Gupta, VK, Schmoll, M., Herrera-Estrella, A., Upadhyay, R.S., **Druzhinina, IS.**, Tuohy M.G, 2014, ELSEVIER, ISBN 978-0-444-59576-8
139. **Mycota IV. Environmental and Microbial Relationships** (eds) **Druzhinina, I.S.**, Kubicek, CP. 2016 SPRINGER, ISBN 978-3-319-29532-9
140. **Mycota IV. Environmental and Microbial Relationships** (eds) Kubicek, CP., **Druzhinina, I.S.** 2007 SPRINGER ISBN 978-3-540-71839-0
141. **8th European conference on fungal genetics ECFG8**, 8-11 April, 2006, Vienna, Austria: book of abstracts, IS. **Druzhinina, AG.** Kopchinskiy, CP. KubicekVienna University of Technology, Institute of Chemical Engineering, 2006 – 447 p

#### SELECTED BOOK CHAPTERS

142. Dou, K., Pang, G., Cai, F., Chenthamara,bK., Zhang, J., Liu, H., **Druzhinina, I.S.** and J. Chen Functional genetics of *Trichoderma* mycoparasitism In Amaresan, N., **Druzhinina I.S.**, (eds), *Advances in Trichoderma Biology and Applications*, Springer, *in press*
143. Cai, F., Dou, K., Wang, P., Chenthamara, K., Chen, J, **Druzhinina, I. S.** The current state of *Trichoderma* taxonomy and species identification. In Amaresan, N., **Druzhinina I.S.**, (eds), *Advances in Trichoderma Biology and Applications*, Springer, *in press*
144. Kredics, L.\* , Hatvani, L., Allaga, H., Büchner, R., Cai, F., Vágvölgyi, C., **Druzhinina, I.S.**, Naeimi, S. Trichodermosis: Human Infections Caused by *Trichoderma* Species. In Amaresan, N., **Druzhinina, I. S.**, (eds), *Advances in Trichoderma Biology and Applications*, Springer, *in press*
145. Naeimi, S., Hatvani, L., Marik, T., Balázs, D., Dóczi, I., Cai, F., Vágvölgyi, C., **Druzhinina, I.S.** Kredics, L. \* *Trichoderma* Green Mould Disease of Cultivated Mushrooms. n N. Amaresan, IS. **Druzhinina** (eds), *Advances in Trichoderma Biology and Applications*, Springer, *in press*
146. Chen P, Pang G, Cai F, **Druzhinina IS** 2021 Strain Improvement and Genetic Engineering of *Trichoderma* for Industrial Applications. In: Reference **Module in Life Sciences**, Elsevier, 2021 DOI: 10.1016/B978-0-12-819990-9.00029-9
147. Chenthamara, K., Rahimi, M., Grujic, M., **Druzhinina, I. S.** and Cai, F. *Trichoderma reesei* – Methods and Protocols: Ecological genomics and evolution of *Trichoderma reesei*, Mach-Aigner, A., and Martzy, R., eds. **Methods in Molecular Biology**, Springer Nature DOI: 10.1007/978-1-0716-1048-0\_1
148. Rahimi, M., Cai, F., Grujic, M., Chenthamara, K., and **Druzhinina, I. S.** *Trichoderma reesei* – Methods and Protocols: Molecular identification of *Trichoderma reesei*. Mach-Aigner, A. and Martzy, R., eds. **Methods in Molecular Biology**, Springer Nature DOI: 10.1007/978-1-0716-1048-0\_14
149. Cai, F., Kubicek, C. P., **Druzhinina, I. S.\*** 2021. Biofuels and Biodiesel: Genetic transformation of *Trichoderma* spp. IN: Biofuels and Biodiesel Chhandak B., ed. **Methods in Molecular Biology**, Springer Nature, 10.1007/978-1-0716-1323-8
150. Marik T, Szekeres A, Andersson MA, Salkinoja-Salonen M, Tyagi C, Leitgeb B, Vágvölgyi C, **Druzhinina IS**, Kredics L Bioactive Peptaibols of Forest-Derived *Trichoderma* Isolates from Section *Longibrachiatum*. In: **Soil Biological Communities and Ecosystem Resilience** Lukac M, Grenni P, Gamboni M (eds), 2017. Springer International Publishing, Cham, pp 277-290
151. Chenthamara K, **Druzhinina IS** (2016) 12 Ecological Genomics of Mycotrophic Fungi. In: **Druzhinina IS, Kubicek CP** (eds) *Mycota IV Environmental and Microbial Relationships*. **Springer International Publishing**, Cham, pp 215-246
152. Kubicek CP and **Druzhinina IS.** *Trichoderma* Mycoses and Mycotoxins. In Paterson RRM, Lima N (eds.): *Molecular Biology of Food and Water Borne Mycotoxigenic and Mycotic Fungi*. CRC Press, 2015. ISBN 9781466559868 - CAT# K15868
153. Hatvani L, Vagvölgyi C, Kredics L, **Druzhinina I.** DNA Barcode for Species Identification in *Trichoderma*. In: Gupta VK, Schmoll M, Herrera-Estrella A, Upadhyay RS, Druzhinina IS and Tuohy M (eds.) *Biotechnology and Biology of Trichoderma*. 2014. Elsevier BV, Amsterdam, the Netherlands.
154. Kredic L, Hatvani L, Naeimi S, Körmöczi P, Manczinger L, Vagvölgyi C, **Druzhinina I.** Biodiversity of the Genus *Hypocrea/ Trichoderma* in Different Habitats. In: Gupta VK, Schmoll M, Herrera-Estrella A, Upadhyay RS, Druzhinina IS and Tuohy M (eds.) *Biotechnology and Biology of Trichoderma*. 2014. Elsevier BV, Amsterdam, the Netherlands.



155. Seidl-Seiboth V, Ihrmark K, **Druzhinina** I, Karlsson M. Molecular Evolution of *Trichoderma* Chitinases. In: Gupta VK, Schmoll M, Herrera-Estrella A, Upadhyay RS, Druzhinina IS and Tuohy M (eds.) *Biotechnology and Biology of Trichoderma*. 2014. Elsevier BV, Amsterdam, the Netherlands.
156. Schmoll M, Seiboth B, **Druzhinina** I, Kubicek CP. Genomics Analysis of Biocontrol Species and Industrial Enzyme Producers from the Genus *Trichoderma*. In: Nowrousian M (ed.) *Fungal Genomics*, 2<sup>nd</sup> Edition, The Mycota XIII. Springer-Verlag Berlin Heidelberg 2014
157. Kubicek CP and **Druzhinina** IS 2013 *Trichoderma* – genomic aspects of biocontrol and biomass degradation In: *Genomics of Soil- and Plant-Associated Fungi Soil Biology Volume 36*, 2013, pp 127-156
158. Kubicek CP. And **Druzhinina** IS. 2013 *Trichoderma* and mycotoxins. In: R.R. M. Paterson (ed.) *Molecular Biology of Food and Water Borne Mycotoxigenic and Mycotic Fungi of Humans*. CRC Press, <http://www.crcpress.com/product/isbn/9781466559868>
159. Atanasova L, **Druzhinina** IS, Jaklitsch WM. 2013 Two hundred *Trichoderma* species recognized based on molecular phylogeny. In: Mukherjee PK, Sigh US, Horwitz BA, Schmoll M, Mukherjee M (eds.) *Trichoderma: Biology and Applications*. . CABI of Nosworthy Way, Wallingford, Oxon, UK.
160. **Druzhinina** IS and Kubicek CP. 2013. Ecological genomics of *Trichoderma*. In: F. Martinn (ed.) *Ecological genomics of fungi*. Wiley-Blackwell, Oxford, UK, in press.
161. dela Cruz TEE, Schulz BE and IS **Druzhinina** (2010) Polyphasic approach to the taxonomy of the marine *Dendriphiella* species from different geographic locations. In Gupta VK et al (eds.) "Fungal Biochemistry and Biotechnology, LAP LAMBERT Academic Publishing AG & Co. KG, Germany

#### ILLUSTRATIONS

162. Kubicek CP with figures by **Druzhinina** IS and Atanasova L. **Fungi and Lignocellulosic Biomass**. 2012. Wiley-Blackwell, Oxford, UK.

#### SELECTED NON-PEER-REVIEWED PUBLICATIONS

163. **Druzhinina** IS. **Using Mother Nature to Help Clean Up Mother Nature**. Scientia Apr 28, 2017 | Biology, Earth and Environment, <https://www.scientia.global/irina-druzhinina-single-pages/>
164. **Druzhinina**, IS., Laminger, T., Herwig, C., and Mach R. **Less plastic waste in the future**, 2017 Open Access Government, <https://www.openaccessgovernment.org/less-plastic-waste-future/40540/>
165. Friedl, M.A & I. S. Druzhinina (2012) **In situ DNA barcoding of *Trichoderma* in soil reveals a narrow community of opportunistic species**. *Stapfia* 96, 179 – 193
166. **Druzhinina** IS, Kopchinskiy AG (2006) **TrichoKEY v. 2 - A DNA Oligonucleotide BarCode Program for the Identification of Multiple Sequences of *Hypocrea* and *Trichoderma***. Proceedings of the 8th International Mycological Congress, Cairns, Australia