

# Joel da Cruz Couceiro

## Curriculum vitae

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### Personal information

**Birth:** 21 June 1990

**Nationality:** Brazilian

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### Education

- 2017 - 2021**    **Doctor Degree in Entomology – Double degree program:**  
**University of São Paulo, Luiz de Queiroz College of Agriculture (ESALQ/USP)**  
– Piracicaba, SP, Brazil  
**Københavns Universitet (KU)** – Copenhagen, Denmark  
**Supervisors:** Prof. Dr. Ítalo Delalibera Junior (ESALQ/USP)  
Prof. Dr. Nicolai Vitt Meyling (KU)  
**Title of thesis:** Niche adaptations and plasticity within the fungal entomopathogenic genus *Metarhizium* in Brazil  
**Funded by:** The São Paulo Research Foundation (FAPESP)
- 2013 - 2015**    **Master's Degree in Entomology**  
**Universidade Federal de Viçosa** – Viçosa, MG, Brazil  
**Supervisor:** Prof. Dr. Terezinha Maria Castro Della Lucia  
**Title of dissertation:** Ação de fungos entomopatogênicos na mortalidade e no sistema imune de formigas-cortadeiras (translation: Activity of entomopathogenic fungi on mortality and in the immune system of leaf-cutting ants)  
**Funded by:** Brazilian National Council for Scientific and Technological Development (CNPq)
- 2008 - 2013**    **Bachelor and Licentiate Degree in Biological Sciences**  
**Universidade Federal de Viçosa** – Viçosa, MG, Brazil  
**Award:** Praise for academic performance
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### Research experience

**1. Foundation for Research and Technology Hellas, Institute of Molecular Biology and Biotechnology**

*Post-doc Research Associate*

Project “MicroBioPest”

02/2023 – Present

**2. University of São Paulo, Luiz de Queiroz College of Agriculture – Laboratory of Insect Pathology and Microbial Control of Insects**

*Research fellowship*

Project “ES BIOPRODUTO” – Funded by: Fundação de Apoio à Pesquisa Agrícola – FUNDAG

09/2016 - 03/2017    Activities: basic microbiology laboratory activities (preparation of culture media; cultivation of fungal colonies, preparation of fungal suspensions); solid fermentation of entomopathogenic fungi; insect rearing; virulence bioassays. 40h/week.

### 3. Universidade Federal de Viçosa – Laboratory of Leaf-cutting ants

Research Assistant

04/2015 - 08/2016 Activities: maintenance of leaf-cutting ant colonies; cultivation and maintenance of fungal colonies; bioassays of virulence. 20h/week.

### 4. Universidade Federal de Viçosa – Laboratory of Leaf-cutting ants

Internship

12/2010 – 02/2013 Activities: maintenance of leaf-cutting ant colonies; cultivation and maintenance of fungal colonies; bioassays of virulence. 12h/week.

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### Publications in peer-reviewed journals

**COUCEIRO JC**; DE FINE LICHT HH; DELALIBERA JR. I.; MEYLING NV. Comparative gene expression and genomics reflect geographical divergence in the plant symbiotic and entomopathogenic fungal genus *Metarhizium*. **Fungal Ecology**, v. 60: 101190, 2022.

**COUCEIRO JC**; FATORETTO MB; DEMÉTRIO CGB; MEYLING NV; DELALIBERA JR. I. UV-B radiation tolerance and temperature-dependent activity within the entomopathogenic fungal genus *Metarhizium* in Brazil. **Frontiers in Fungal Biology**, v. 2: 645737, 2021.

GANDRA LC; AMARAL KD; **COUCEIRO JC**; DÂNGELO RAC; DE SOUZA DJ; DELLA LUCIA TMC. Immune defense strategies of queens of the social parasite ant *Acromyrmex ameliae* and queens of its natural hosts. **Neotropical Entomology**, v. 50, p. 229-236, 2021.

GANDRA LC; AMARAL KD; **COUCEIRO JC**; GUEDES RNC; DELLA LUCIA TMC. Does resource-mediated stress affect colony personality in leaf-cutting ants? **Pest Management Science**, v. 77, p. 96-103, 2020.

**COUCEIRO JC**; MARCELINO WL; AMARAL KD; GANDRA LC; DE SOUZA DJ; DELLA LUCIA TMC. Effects of entomopathogenic fungi on the mortality and immune system of the leaf-cutting ant *Acromyrmex subterraneus subterraneus*. **Entomologia Experimentalis et Applicata**, v. 161, p. 152-159, 2016.

GANDRA LC; AMARAL KD; **COUCEIRO JC**; DELLA LUCIA TMC; GUEDES RNC. Mechanism of leaf-cutting ant colony suppression by fipronil used in attractive toxic baits. **Pest Management Science**, v. 72, p. 1475-1481, 2016.

DÂNGELO RAC; DE SOUZA DJ; MENDES TD; **COUCEIRO JC**; DELLA LUCIA TMC. Actinomycetes inhibit filamentous fungi from the cuticle of *Acromyrmex* leafcutter ants. **Journal of Basic Microbiology**, v. 56, p. 229-237, 2016.

LACERDA FG; DELLA LUCIA TMC; DESOUZA O; PEREIRA OL; KASUYA MCM; DE SOUZA LM; **COUCEIRO JC**; DE SOUZA DJ. Social interactions between fungus garden and external workers of *Atta sexdens* (Linnaeus) (Hymenoptera: Formicidae). **The Italian Journal of Zoology**, v. 81, p. 298-303, 2014.

DE SOUZA DJ; LENOIR A; KASUYA MCM; RIBEIRO MMR; DEVERS S; **COUCEIRO JC**; DELLA LUCIA TMC. Ectosymbionts and immunity in the leaf-cutting ant *Acromyrmex subterraneus subterraneus*. **Brain, Behavior, and Immunity**, v. 28, p. 182-187, 2013.

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### Presentations in conferences – Posters

FATORETTO MB; MORAL RA; BROPHY C; DEMÉTRIO CGB; **COUCEIRO JC**. Joint modelling of mean and dispersion in dose-response experiments. In: 64<sup>a</sup> Reunião Anual da Região Brasileira da Sociedade Internacional de Biometria (RBras) e 18<sup>o</sup> Simpósio de Estatística Aplicada à Experimentação Agronômica (SEAGRO). Cuiabá, MT, Brazil. 2019.

**COUCEIRO JC**; FATORETTO MB; MEYLING NV; DELALIBERA JR. I. Differential susceptibility towards UV-B radiation among *Metarhizium* spp. isolates from different ecosystem compartments. In: 2019 International Congress on Invertebrate Pathology and Microbial Control & 52nd Annual Meeting of the Society for Invertebrate Pathology & 17th Meeting of the IOBC-WPRS Working Group "Microbial and Nematode Control of Invertebrate Pests". Valencia, Spain. 2019.

GANDRA LC; AMARAL KD; **COUCEIRO JC**; DE SOUZA DJ; DELLA LUCIA TMC. Immune response of *Acromyrmex ameliae* queens and their natural hosts. In: XXIII Simpósio de Mirmecologia, An International Ant Meeting. Curitiba, PR, Brazil. 2017.

CHAGAS PG; **COUCEIRO JC**; MARINHO CGS; VALICENTE FH; LUCIA TMD; FADINI MAM. Pathogenicity of *Bacillus thuringiensis* isolates on workers of *Atta sexdens* (Linnaeus, 1758) (Hymenoptera: Formicidae). In: XXII Simpósio de Mirmecologia - An International Ant Meeting. Ilhéus, BA, Brazil. 2015.

**COUCEIRO JC**; SOUZA BMR; DELLA LUCIA TMC. Activity of actinomycete lineages over the entomopathogenic fungus *Metarhizium* sp. In: XXI Simpósio de Mirmecologia. Fortaleza, CE, Brazil. 2013.

**COUCEIRO JC**; DANGELO RAC; SOUZA DJ; DELLA LUCIA TMC. Análise do efeito inibitório de actinomicetos de formigas cortadeiras sobre o fungo *Fusarium oxysporum*. In: XX Simpósio de Mirmecologia - I Encuentro de Mirmecologista de Las Americas. Petrópolis, RJ, Brazil. 2011.

DANGELO RAC; GANDRA LC; **COUCEIRO JC**; SOUZA DJ; DELLA LUCIA TMC. Efeito inibitório de actinomicetos sobre o crescimento de fungos presentes nos ninhos da formiga *Acromyrmex balzani* (Emery, 1890). In: XX Simpósio de Mirmecologia - I Encuentro de Mirmecologista de Las Americas. Petrópolis, RJ, Brazil. 2011.

**COUCEIRO JC**; PEREIRA KF; OTUKI SAP; ZAPPES IA; TOGNI PHB; FIALHO VS. Interferência de recursos alternativos na seleção de habitat por *Cycloneda sanguinea* (Coleoptera: Coccinellidae) quando na presença de um predador intraguilda. In: X Congresso de Ecologia do Brasil. São Lourenço, MG, Brazil. 2011.

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#### **Presentations in conferences – Oral:**

AMARAL KD; GANDRA LC; **COUCEIRO JC**; DE SOUZA DJ; DELLA LUCIA TMC. Influence of social parasitism by *Acromyrmex ameliae* on the immune response of host workers of *Acromyrmex subterraneus subterraneus*. In: XXII Simpósio de Mirmecologia - An International Ant Meeting. Ilhéus, BA, Brazil. 2015.

**COUCEIRO JC**; DANGELO RAC; SOUZA DJ; DELLA LUCIA TMC. Interaction between actinomycete, leaf-cutting ant and entomopathogenic fungus In: XXI Simpósio de Mirmecologia. Fortaleza, CE, Brazil. 2013.

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#### **Teaching experience**

**1. Luiz de Queiroz College of Agriculture, University of São Paulo – Department of Entomology**

02/2021 – 06/2021 Supervised teaching internship in the discipline Zoology of Invertebrates I, Biological Sciences undergraduate course. Activities: assisted the professor in preparing classes; prepared a didactic material for practical classes; solved students' questions; assisted students in preparing seminars; taught one class during the semester. 6h/week.

## **2. Universidade Federal de Viçosa – Department of Animal Biology**

03/2011 – 12/2011 Voluntary teaching assistant in the disciplines Zoology of Vertebrates I and Zoology of Vertebrates II, Biological Sciences undergraduate course. Activities: assisted the professor in preparing practical classes; solved students' questions; assisted the professor in preparing and correcting practical exams. 4h/week.

10/2009 – 02/2013 Teaching assistant level I in the disciplines Zoology of Invertebrates I and Zoology of Invertebrates II, Biological Sciences undergraduate course. Activities: assisted the professor in preparing practical classes; solved students' questions; assisted the professor in preparing and correcting practical exams; taught one class each semester. 12h/week.

03/2009 – 09/2009 Voluntary teaching assistant in the disciplines Zoology of Invertebrates I and Zoology of Invertebrates II, Biological Sciences undergraduate course. Activities: assisted the professor in preparing practical classes; solved students' questions; assisted the professor in preparing and correcting practical exams. 2h/week.

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### **Complementary formation**

**2021** Course of Bioinformatics Applied to Genomics of Microorganisms (Workload: 40h). BioUni. Online course.

**2017** Training: Management of waste generated in teaching and research laboratories (Workload: 4h). Luiz de Queiroz College of Agriculture, University of São Paulo – Piracicaba, SP, Brazil.

**2013** Experimental Design and Biological Statistics - Course of R (Workload: 15h). Universidade Federal de Viçosa – Viçosa, MG, Brazil.

**2011** PCR: Basic Principles and Applications (Workload: 8h). Universidade Federal de Viçosa – Viçosa, MG, Brazil.

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### **Other technical productions:**

**COUCEIRO JC; GANDRA LC; AMARAL KD.** Workshop: Biology and Control of Leaf-cutting ants. Event: V Symposium (International) of Entomology. Viçosa, MG, Brazil. 2015.

Examination committee of the 27<sup>th</sup> USP International Symposium of Undergraduate Research (SIICUSP). Piracicaba, SP, Brazil, 2019.

Examination committee of the 26<sup>th</sup> USP International Symposium of Undergraduate Research (SIICUSP). Piracicaba, SP, Brazil, 2018.

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## Examination Boards

DELLA LUCIA TMC; SIQUEIRA MAL; **COUCEIRO JC**. Participation on the final paper examination board of Bressane Máisa Reis de Souza. "A atuação de actinomicetos na defesa de formigas-cortadeiras *Acromyrmex subterraneus molestans* submetidas à contaminação por *Metarhizium anisopliae*". Universidade Federal de Viçosa, 2016.

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## Languages

**Portuguese:** native language

**English:** fluent

**French:** basic level