

C U R R I C U L U M V I T A E

Firehiwot Birhane Eshetu

Forestry and Agricultural Biotechnology Institute (FABI) | Department of Biochemistry,
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PERSONAL INFORMATION

Nationality: Ethiopian

Language: English, Amharic (Native speaker), Oromo (understand and write)

Date of birth: 29 January 1988

Research interest: Population genetics, Molecular plant (forest) pathology, Biological invasion, Biological control, Entomology, Fungicides

Research profile: Research gate, FABI.net, Google Scholar

Social media: Twitter (@frie15)

CURRENT STATUS

01 May 2024 - Current **Postdoctoral fellowship**, University of Pretoria, South Africa
Project: *In vitro* screening of different fungicides effective against the
Kiwifruit spot and rot pathogen *Pseudocercospora* spp.
Supervisor: Prof. Irene Barnes, University of Pretoria

EDUCATION BACKGROUND

2016 - 2024 **PhD Student in Genetics**, University of Pretoria, South Africa
Thesis title: Diversity in *Sirex noctilio*, *Amylostereum areolatum* and *Deladenus siricidicola* populations in Australasia and its implications for biological control
Supervisor: Prof. Bernard Slippers, University of Pretoria
Co-supervisors: Prof. Irene Barnes, University of Pretoria
Prof. Helen Nahrung, University of Sunshine Coast,
Queensland, Australia

- 2013 - 2015 **MSc in Nematology**, Ghent University, Ghent, Belgium
 Thesis title: Functional analysis of effectors secreted by the root-knot nematode *Meloidogyne graminicola*.
 MSc award: Cum laude
 Supervisor: Prof. Dr. Godelieve Gheysen, Ghent University
 Co-supervisor: Ms. Diana Naalden, Ghent University
- 2009 - 2012 **MSc in Applied Genetics**, Addis Ababa University, Addis Ababa, Ethiopia
 Thesis title: Genetic diversity study of *Jatropha curcas* (L.) population using ISSR marker.
 Supervisor: Dr Tileye Feyissa, Addis Ababa University
- 2006 - 2009 **BSc in Applied Biology**, Hawassa University, Hawassa, Ethiopia
 BSc project: The effect of illegal mesh size on fish production (*Oreochromis niloticus*) in Lake Hawassa.
- 2008 **Practical attachment in Microbiology**, Bacteriology research, Armauer Hansen Research Institute (AHRI), Addis Ababa, Ethiopia

INTERNATIONAL TRAINING AND/OR WORKSHOPS

- 2024 **AfricaBio genome Oxford Nanopore workshop**, 13 – 15 November 2024. University of Pretoria Genomics Laboratory, South Africa.
- 2022 **The Basics of RStudio and Its Application in Statistical Analysis for Biology**. Forestry and Agricultural Biotechnology Institute FABI, University of Pretoria, South Africa
- 2020, 2018, 2017 **Introductory Microsatellite Workshop**. Forestry and Agricultural Biotechnology Institute (FABI) of the University of Pretoria, in collaboration with Thermo Fisher
- 2019 **Forest Entomology: Implementation of Biological Control. Forest Invasive Species Network for Africa (FISNA) Workshop**. By: FAO in collaboration with Forestry and Agricultural Biotechnology Institute (FABI). Future Africa campus, University of Pretoria, South Africa
- 2019 **RStudio and R package Introduction workshop series**. Forestry and Agricultural Biotechnology Institute FABI, University of Pretoria, South Africa
- 2017 **Advanced Phylogenetic workshop**. By: Prof. Martin Coetzee, Department of Biochemistry, Genetics and Microbiology, University of Pretoria, South Africa and, Inqaba Biotec, South Africa

- 2017 **Introductory Phylogenetics workshop.** By: Dr Jane Wright Inqaba BioTech, University of Pretoria, Pretoria, South Africa
- 2014 **WHAT NEXT?** How International Students Can Contribute to the Development of their Home Country After Successful Study Abroad Experience. University of Ghent, Ghent, Belgium
- 2012 **Advanced Course on Rural Economic Reform and Development for Developing Countries.** Nanjing Agricultural University, China
- 2010 **Common Molecular Marker Techniques and Their Applications in Plant Breeding and Conservation of Plant Genetic Resources.** By: Genetics Research Laboratory/College of Natural Science, Addis Ababa University, Biodiversity International and Canadian international Development Agency (CIDA) project “**Understanding and managing the genetic diversity of Noug (*Guizotia abyssinica*) for its improvement**”, Addis Ababa, Ethiopia

WORK EXPERIENCE

- Jan.2017 – Nov.2022 TPCP- CTHB, Student work study-duties (Community service). Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria
- ✚ FABI-II Gel-doc facility (Responsible for general lab management)
 - ✚ Assistance at FABI biocontrol facility (Responsible to look after oversea nematode cultures)
 - ✚ FABI disease clinic data capturing
 - ✚ Molecular work: PCR (microsatellite and other gene regions), and Sequencing
 - ✚ Sample processing: Insect dissection, Fungal isolation, and culture process
- 2013 Junior Lecturer at Mekelle University, Department of Biotechnology, College of Dry Land Agriculture and Natural resource, Mekelle University, Mekelle, Ethiopia

TEACHING EXPERIENCE

- 2021 **GTS351** (Eukaryotic Gene Control and Development), Tutoring, Department of Biochemistry, Genetics and Microbiology, Division of Genetics, University of Pretoria, South Africa

2019 **GTS261** (Genetics Diversity and Evolution), Tutoring, Department of Biochemistry, Genetics and Microbiology, Division of Genetics, University of Pretoria, South Africa

STUDENT MENTORSHIP

2020 Ms Tiphany Nkomo (BSc, University of Pretoria), (DST-NRF, CTHB, FABI) – not completed because of COVID-19 lockdown
2019 Ms Micaela Schagen (BSc, University of Pretoria), (DST-NRF, CTHB, FABI)

PROFESSIONAL MEMBERSHIP

- ✚ South African Genetics Society (2023)
- ✚ Southern African Society of Plant Pathology (SASPP; 2022 – current)
- ✚ Entomological Society of South Africa (2018 – current)
- ✚ The Association of Ethiopian Professionals in Southern Africa (EthPASA; 2018 – current)- Executive member since 2021

COMMUNITY SERVICE

2018 Social club duties, FABI, University of Pretoria, South Africa
2016 The International Conference for African Development (ICAD), Volunteer to help facilitate the conference, especially in helping international attendees, Addis Ababa University, Addis Ababa, Ethiopia

SCHOLARSHIPS AND AWARDS

2018 FABI Best Website Award
2016-2022 Australian, National Sirex Coordination Committee (NSCC) Doctoral Bursary Award. FABI, University of Pretoria, South Africa.
2013 - 2015 Vliruos Master Scholarship Award. Flanders, Belgium.
2009 - 2012 Ethiopian Higher Education MSc Programme Bursary Award. Addis Ababa University, Addis Ababa Ethiopia.

PUBLICATION

Eshetu, F.B., Barnes, I., Nahrung, H.F., Fitza, K.N. E., Meurisse, N. and Slippers, B.(2023). Unexpected diversity in historical biological control programs: Population genetics of the nematode *Deladenus siricidicola* in Australia and New Zealand. *Biological Control*. <https://doi.org/10.1016/j.biocontrol.2023.105183>

Naalden, D., Haegeman, A., de Almeida-Engler, J., **Eshetu, F.B.**, Bauters, L. and Gheysen, G. (2018), The *Meloidogyne graminicola* effector Mg16820 is secreted in the apoplast and cytoplasm to suppress plant host defense responses. *Molecular Plant Pathology*. doi:10.1111/mpp.12719.

CONFERENCES

Eshetu, F. B., Barnes, I., Nahrung, H. F., Fitza, K. N. E., Slippers, B. (2024) Exploring 120 years of invasion history of *Sirex noctilio* and *Amylostereum areolatum* in Australasia. SASBi|SAGS BIO2024 Conference, Future Africa, Pretoria, South Africa, September 22 – 25, 2024. **Poster**

Nahrung, H., Slippers B., **Eshetu, F.**, Fitza, K. N. E., Barnes I., Hurley B., Meurisse N., Elms, S., Carnegie, A. (2024). *Sirex* woodwasp biocontrol: from Australia to the world and back again. *Learning from the past to better inform the future: integrated approaches to increase forest health and resilience* IUFRO 26th World Congress Stockholm 2024, Stockholm, Sweden, June 23 – 29, 2024. **Oral**

Eshetu, F.B., Fitza, K.N.E., Barnes, I., Nahrung, F.H. and Slippers, B. (2024). Exploring opportunities to improve *Sirex noctilio* biological control. *The 35th Annual Meeting of the Tree Protection Co-operative Programme (TPCP)*. South Africa, Pretoria, May 07 – 08, 2024. **Oral**

Eshetu, F.B., Barnes, I., Nahrung, F.H., Fitza, K.N.E., Slippers, B., 2023. Population genetics of *Sirex noctilio* and *Amylostereum areolatum* in Australasia: Unravelling 120 years of invasion history. *Joint meeting IUFRO WP 7.02.13 and 7.02.03. Novel and classical strategies to manage forest health in plantations*. Campo Grande, Mato Grosso do Sul, Brazil, September 17 – 20. **Poster**

Fitza K.N.E., **Eshetu F.**, Nahrung H., Barnes I., Carnegie A., Hurley, B.P., Slippers B., 2023. Reproduction and growth rate of Lineage B and D nematode strains and the implications for *Sirex* Management. *Joint meeting IUFRO WP 7.02.13 and 7.02.03. Novel and classical strategies to manage forest health in plantations*. Campo Grande, Mato Grosso do Sul, Brazil, September 17 – 20. **Poster**

Eshetu, F.B., Slippers, B., Nahrung, F.H., Fitza, K.N.E., Barnes, I., and Hurley, B. (2022). Insect-fungal joint invasions and biological control: Lessons from global *Sirex noctilio* invasion. *IUFRO Conference Division 7 – Forest Health Pathology and Entomology*. Lisbon September 6 – 9, 2022. **Oral**.

- Eshetu, F.B.**, Barnes, I., Nahrung, F.H., Fitza, K.N.E., and Slippers, B. (2022). Variation in the reproduction of the biological control nematode *Deladenus siricidicola* on *Amylostereum areolatum* strains. *International Congress on Invertebrate Pathology and Microbial Control and 54th Annual Meeting of the Society of Invertebrate Pathology*. Zoom conference, August 1 – 4, 2022. **Poster**.
- Eshetu, F.B.**, Fitza, K.N.E., Barnes, I., Nahrung, F.H. and Slippers, B. (2022). Diversity matters in biological control systems: The Sirex-Deladenus story in Australasia. *The 33rd Annual Meeting of the Tree Protection Co-operative Programme (TPCP) and DSI/NRF Centre of Excellence in Plant Health Biotechnology (CPHB)*. South Africa, Pretoria, May 10 – 11, 2022. **Oral**.
- Eshetu, F.B.**, Nahrung, H., Barnes, I., Fitza, K.N.E., Elms, S. and Slippers, B. (2019). Unravelling the population genetic diversity, structure, and introduction history of the biocontrol nematode *Deladenus siricidicola* in Australia and New Zealand. *IUFRO WG 7.03.13*. South Africa, Pretoria, November 6- 8, 2019. **Oral**.
- Eshetu, F.B.**, Nahrung, H., Barnes, I., Fitza, K.N.E., Elms, S. and Slippers, B. (2019). Genetic diversity of the biocontrol nematode *Deladenus siricidicola* in Australia and New Zealand. *The 21st Entomology Society of Southern Africa (ESSA) Congress*. Umhlanga, Durban, South Africa, July 8-1, 2019. **Oral**.
- Eshetu, F.B.**, Nahrung, H., Barnes, I., Fitza, K.N.E., Elms, S. and Slippers, B. (2018). Genetic diversity of the biocontrol nematode *Deladenus siricidicola* in Australia and New Zealand. *International Congress on Invertebrate Pathology and Microbial Control and the 51th Annual Meeting of the Society for Invertebrate Pathology*. Gold Coast, Australia, August 12 - 16, 2018. **Poster**.
- Fitza, K.N.E., **Eshetu, F.B.**, Garnas, J. R., Ahumada, R., Ayres, M. P., Krivak-Tetley, F.E., Dodds, K., Lombardero, M.J., Brockerhoff, E.G., Barnes, I., Nahrung, H., Wingfield, M.J. and Slippers, B. (2018). Genetic diversity in global collection of *Deladenus siricidicola*. *International Congress on Invertebrate Pathology and Microbial Control and the 51th Annual Meeting of the Society for Invertebrate Pathology*. Gold Coast, Australia, August 12 - 16, 2018. **Oral**.
- Eshetu, F.B.**, Naalden, D. and Gheysen, G. (2016). Functional analysis of effectors secreted by the root-knot nematode *Meloidogyne graminicola*: The foot-print of molecular plant-pathogen interaction studies in plant disease management. *“Emerging Technologies and Innovations to promote the Ethiopian Economy”*. 2nd Annual Research Conference of Addis Ababa Science & Technology University, June 2-3, 2016, Addis Ababa, Ethiopia. **Oral**
- Eshetu, F.B.**, Naalden, D. and Gheysen, G. (2016). Functional analysis of effectors secreted by the root-knot nematode *Meloidogyne graminicola*: A step-forward to management practice. *“Advancing and Shaping the Feature of Science, Technology and Innovation in Ethiopia”*. Wollega University National Annual Conference, Wollega, Ethiopia, 13 - 14 May 2016. **Oral**

REFERENCES

1. **Prof. Bernard Slippers.** Director General, Forestry and Agricultural Biotechnology Institute (FABI), Department of Biochemistry, Genetics and Microbiology (BGM), Division of Genetics, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria, South Africa | Phone: +27 (012) 420 2463 | Email: Bernard.Slippers@fabi.up.ac.za
2. **Prof. Irene Barnes.** Department of Biochemistry, Genetics and Microbiology (BGM), Division of Genetics, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria, South Africa | Phone: +27 (082) 416 2205 | Email: Irene.Barnes@fabi.up.ac.za
3. **Prof. Helen Nahrung.** Forest Health Senior Research Fellow, University of Sunshine Coast, Queensland, Australia | Email: hnahrung@usc.edu.au

The information I have provided here is true and correct to the best of my knowledge.

Dr Firehiwot B. Eshetu (Postdoctoral fellowship, FABI, University of Pretoria)

Updated November 2024