

PERSONAL INFORMATION

Date of birth: 07/09/1987; Nationality: Ghanaian

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Languages: English (advanced), Danish (moderate fluency), and Turkish (fluent)

RESEARCH PROFILE

I am a plant pathologist/epidemiologist, who specializes in sustainable disease management in arable and high-value crops. My research focuses on plant disease diagnosis and epidemiology, pathogen characterization, disease forecasting, biocontrol, integrated pest management (IPM), host resistance, exploitation of cultural methods for plant disease management (e.g., fertilization), and host physiology to suppress plant disease development. I have experience with several host pathosystems, but my research has mainly focused on potato diseases, i.e., late blight (*Phytophthora infestans*), early blight (*Alternaria spp*), stem canker/black scurf (*Rhizoctonia solani*), potato early dying (*Verticillium dahlia*), black dot (*Colletotrichum coccoodes*) and black leg disease (*Pectobacterium sp* and *Dickeya sp.*). However, recently, I also delved into the management of diseases of other crops in wheat (*Septoria*), onion (downy mildew), sugar beet (*Cercospora*, powdery mildew, *Ramularia* leaf spot, etc.).

Keywords: Integrated management of plant diseases; disease epidemiology and modeling; molecular and morphological diagnostics of plant pathogens; field, greenhouse, and lab experimentations; fungicide resistance; data mining and statistical analysis.

Please read more about my profile:

[https://pure.au.dk/portal/en/persons/isaac-kwesi-abuley\(e99f7c7d-9ced-45c8-a61d-442fccfc7d9d\).html](https://pure.au.dk/portal/en/persons/isaac-kwesi-abuley(e99f7c7d-9ced-45c8-a61d-442fccfc7d9d).html)

<https://orcid.org/0000-0003-2924-4562>

<https://www.researchgate.net/profile/Isaac-Abuley-2>

EDUCATION

2015-2018 PhD Agroecology (Plant pathology), Aarhus University, Denmark.

2013-2015 MSc Agrobiology, Aarhus University, Denmark.

2008-2011 BSc Agriculture, Kwame Nkrumah University of Science & Technology (KNUST), Ghana.

SCIENTIFIC QUALIFICATIONS

- Characterization of host and pathogen interactions
- Studies to integrate host resistance into integrated pest management strategies
- Biological control of plant pathogens
- Exploring genetic and phenotypic traits underpinning the invasion of pathogens
- Fungicide resistance and strategies to mitigate their occurrence
- Field and greenhouse studies
- Disease modeling and forecasting/decision support systems
- Disease Diagnoses

WORK EXPERIENCES

2023 (June) -to date	Tenure Track Assistant Prof. in Disease Management, Aarhus University
2023 (March-May)	Academic Employee in Potato Disease management, Aarhus University
2019-2023 (February)	Postdoc (Postdoc on potato disease management), Aarhus University.
2015-2018	PhD fellow, Department of Agroecology, Aarhus University
2015	Research Assistant, Department of Agroecology, Aarhus University
2011-2012	Research Assistant, Department of Crops and Soil Sciences, KNUST, Ghana

CURRENT RESEARCH/PROJECT

- Development of proactive fungicide resistance avoidance strategies in potato (Acronym: Potato-FRAS). Role: Co-PI & leader of 3 work packages [WP]. Funded by the Pesticide Research Program (The Danish Ministry of Environment) (Amount 5mil DKK).
- Innovative IPM strategies for management of diseases wheat and onions (2022-2025) ([Innovate-IPM](#)) (Role: Coordinator & leader of 2 work packages [WP]). Funded by the Pesticide Research Program (The Danish Ministry of Environment) (Amount 3.5mil DKK).
- Alternative solutions to stop growth in potatoes (Terminator) (2022-2025), funded by GUDP (Amount: 7.5mil DKK) Role: Co-Lead of WP3 and task leader).
- “Eco-friendly solutions for the integrated management of late and early blight of potatoes (ECOSOL) (2021-2024), SusCrop- ERA-NET Cofund on Sustainable Crop Production funded project (Amount: 2.5mil DKK). Role: WP and tasks leader on the project.
- IPM with alternative control products to control late blight in potatoes (203), funded by the potato levy board (265.000DKK). Role: WP leader and co-PI.
- Sustainability and resilience in organic potato production (2023-2026). Funded GUDP/ICROFS (Amount: 7mil DKK). Role: Co-PI and WP leader.
- Optimizing the effectiveness of R-genes (Acronym: OptiR-genes). Funded by the Niovonrodisk fund (NNF) (amount: 3mil DKK). Role: WP leader.
- Management of late blight with Alternative control products. Funded by the potato levy board (amount: 265.000 DKK). Role: WP leader
- Diversity of *Alternaria* species, causing early blight in Denmark. Funded by potato levy board (amount: 250.000). Role: Coordinator.
- The impact of the potato early-dying complex in Denmark. Funded by the potato levy board (amount: 350.000 DKK). Role: WP leader.
- Adopt-IPM (EU Horizon2020 project). Total amount 10mil EUR (298.000 EUR for my contribution). Role: Task leader in WP4.

COMPLETED PROJECTS:

- BlightManager (2019-2021): Development of a decision support system to manage the blights of potatoes in Denmark (Role: led a WP on the development of decision support system [DSS], field trials, characterization of host resistance, and development of molecular diagnostic tools for early and late blight). Funded by GUDP (Total amount: 18mil DKK).
- Screening for fungicide resistance in *Alternaria solani* and *Alternaria alternata* (2020). Funded by the potato levy board (Total amount: 338.000 DKK). Role: project coordinator
- OrganicPlus (2018-2022): Pathways to phasing out contentious input from organic agriculture in Europe (<https://organic-plus.net/>). Funded by EU Horizon 2020 (Total budget:

ca. 32 mil EUR, 749.380 DKK to AU-AGRO). (Role: led a task on the development of a decision support system).

- IPMBLIGHT2.0 (2016-2019). Funded by C-IPM under EU's ERA-Net-program (Total budget: 2.5 mil DKK). Role: led a task on the development of a decision support system.
- Controlling early blight with weather and plant-based models (2016-2017). Funded by the potato levy board (Total amount: 800.000 DKK). Role: WP leader and development of decision support system.

TEACHING: I teach the following courses at the master's level (Please see teaching portfolio for details):

- Plant disease diagnosis (2016 to date) (MSc. Course)
- Crop Pest Biology & Management (2016 to date) (MSc. course)
- Biological control (2022) (MSc. course)
- Organic Production of Fruits and Vegetables (2018 to date) (MSc. course)

BSc level

- Klaus-Beck Hunderup (2019). Title of thesis: Biology of the pathogen Potato early blight (*Alternaria Solani*) in potatoes and control in relation to IPM.
- Alexia Rivenet (Exchange student, 2021). Title of report: Potato disease management
- Flore Launay (Exchange student, 2022). Title of report: Management of late and early blight with Alternative products.

MSc. level

- Tobias Jensen (2020). Title of thesis: The potential of alternatives to traditional fungicides in combination with resistant cultivars and chemical control agents against late blight in potatoes.
- Julie Pedersen (2019). Title of thesis: Identification of Primary Inoculum Sources and the Efficacy of Fungicides in the Control and Management of Late Blight in Potatoes
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PhD level

- Julie Pedersen (2021 to date). Title of thesis: Epidemiology and management of potato early-die).
- Laura F. Meno (Exchange student, 2021-2022). Title of thesis: Forecasting early blight in potatoes.

MANAGEMENT EXPERIENCE

- Co-PI and lead of 2 WPs in the Innovative IPM project.
- Co-WP and task leader in the Terminator project
- WP and tasks leader in the ECOSOL project.
- Project leader of the project "Screening for SDHI fungicidresistens i *Alternaria solani* og *Alternaria alternata*
- WP leader on the project BlightManager (2019-2021): Development of a decision support system to manage the blights of potatoes in Denmark.

INTERNATIONAL RESEARCH STAY: Guest researcher at Ghent University, Belgium (January-March 2018) to undertake quantification of soilborne inoculum of *A. solani* & *A. alternata* with qPCR. Planned stay from October to December 2022 at the James Hutton Institute.

INTERNATIONAL AND LOCAL NETWORKS/COLLABORATION: I have an extensive network and collaborations within and outside Denmark. In Denmark, I have a strong working relationship with the potato industry (e.g., KMC, SEGES, AKV, Danespo), chemical (e.g. Syngenta, Belchim, Nordisk Akali), and bio-pesticide (e.g. Chr. Hansen) companies. Internationally, I have a strong working relationship with James Hutton Institute (Scotland), Estonia University of Life Science (Estonia), Technical University of Munich (Germany), Potato Research Institute (Finland), INRA (France), Swedish University of Agriculture, etc. I am also an active member of international research works such as EuroBlight and the European Potato Association. I am co-chair of the early blight sub-group and coordinator for the Euroblight country reports on late blight in Euroblight. Published with scientists from different countries (e.g. UK, France, Norway, Estonia, Spain, Netherlands, Belgium, Poland, Sweden)

REVIEW: Reviewer for following journals; Plant Disease, Phytopathology, Plant Pathology, Scientia Horticulturae, Crop Protection, Plant Disease Protection, Potato Research.

COMPUTER, PROGRAMMING, AND STATISTICAL SKILLS: Strong programming and statistical competence. I am an expert user of R programming and statistical language.

PUBLICATIONS: >30 impactful publications in several publishing outlets. I have provided a list of relevant publications below.

H-index (April 09, 2024): 10 (Google scholar) and 7 (Scopus).

PEER-REVIEWED PUBLICATIONS

1. **Abuley, I. K.**, Hansen, J. G., & Fariñas, L. M. (2023). Evaluation of models based on a generic infection model for controlling early blight in potatoes. *Crop Protection*, 169, [106229]. <https://doi.org/10.1016/j.cropro.2023.106229>
2. **Abuley, I. K.**, Lynott, J. S., Hansen, J. G., Cooke, D. E. L. and Lees, A. K. (2023) The EU43 genotype of *Phytophthora infestans* displays resistance to mandipropamid. *Plant Pathology*.
3. **Abuley, I.K.**, Pedersen, H.A., Lekfeldt, J.D.S., Fomsgaard, I.S. and Ravnskov, S. (2023), Metabolite profiling of *Solanum tuberosum* L. reveals a differential response to *Phytophthora infestans* dependent on host resistance and pathogen isolate. *Plant Pathol.* Accepted Author Manuscript. <https://doi.org/10.1111/ppa.13714>
4. Britt Puidet, Romain Mabon, Michele Guibert, Riinu Kiiker, Kaire Loit, Vinh Hong Le, Håvard Eikemo, Pauline Dewaegeneire, Guillaume Saubeau, Catherine Chatot, Frédérique Arousseau, David E. L. Cooke, Alison K. Lees, **Isaac K. Abuley**, Jens G. Hansen, Roselyne Corbière, Melen Leclerc, Neda Najdabbasi, Didier Andrivon (2023) Investigating phenotypic traits as potential drivers of the emergence of EU_37_A2, an invasive new lineage of *Phytophthora infestans* in Western Europe. *Plant Pathology*, 00, 1– 10. Available from: <https://doi.org/10.1111/ppa.13700>
5. Meno, L., **Abuley, I. K.**, Escuredo, O., and Seijo, M. C. 2023. Factors influencing the airborne sporangia concentration of *Phytophthora infestans* and its relationship with potato disease severity. *Scientia Horticulturae* 307:111520. <https://doi.org/10.1016/j.scienta.2022.111520>
6. Meno, LF, Escuredo, O, **Abuley, IK**, & Carmen, S-CM (2022) Importance of meteorological parameters and airborne conidia to predict the risk of *Alternaria* on a potato crop ambient using machine learning algorithms. Accepted for publication in *Sensors*.

7. Meno, LF, **Abuley**, IK, Escuredo, O & Carmen, S-CM 2022, 'Suitability of Early Blight Forecasting Systems for Detecting First Symptoms in Potato Crops of NW Spain', *Agronomy*, vol. 12, no. 1611, pp. 1 <https://doi.org/10.3390/agronomy12071611>
8. **Abuley**, I., & Hansen, J. G. (2022). Abuley, I. K., & Hansen, J. G. (2022). Characterization of the level and type of resistance of potato varieties to late blight (*Phytophthora infestans*). *Phytopathology*, 112(9), 1917-1927. <https://doi.org/10.1094/PHYTO-07-21-0309-R>.
9. Puidet, B., Mabon, R., Guibert, M., Kiiker, R., Soonvald, L., Hong Le, V., Eikemo, H., Dewaegeneire, P., Saubeau, G., Chatot, C., Aourousseau, F., Cooke, D. E. L., Lees, A., **Abuley**, I. K., Hansen, J. G., Corbiere, R., Leclerc, M., & Andrivon, D. (2022). Examining Phenotypic Traits Contributing to the Spread in Northern European Potato Crops of EU_41_A2, a New Clonal Lineage of *Phytophthora infestans*. *Phytopathology*, 112(2), 414-421. <https://doi.org/10.1094/PHYTO-12-20-0542-R>.
10. **Abuley**, I.K. & Hansen, J.G. 2021, An epidemiological analysis of the dilemma of plant age and late blight (*Phytophthora infestans*) susceptibility in potatoes, *European Journal of Plant Pathology*. <https://doi.org/10.1007/s10658-021-02350-4>
11. **Abuley**, I.K. & Nielsen, B.J. (2019). Integrating cultivar resistance into the TOMCAST model to control early blight, caused by *Alternaria solani*. *Crop Protection*, 117:69-96. <https://doi.org/10.1016/j.cropro.2018.11.007>
12. **Abuley** I.K., Nielsen B.J. and Hansen H.H. (2019). The influence of crop rotation on the onset of early blight (*Alternaria solani*). *Journal of Phytopathology*, 167:35–40. <https://doi.org/10.1111/jph.12771>
13. **Abuley**, I.K., Nielsen, B.J., Hansen, H.H. (2018). The influence of timing the application of nitrogen on early blight (*Alternaria solani*). *Pest Management Science*. <https://doi.org/10.1002/ps.5236>.
14. **Abuley**, I. K., Nielsen, B. J., & Labouriau, R. (2018). Resistance status of cultivated potatoes to early blight (*Alternaria solani*) in Denmark. *Plant Pathology*, 67(2), 315-326. DOI: 10.1111/ppa.12744.
15. **Abuley**, I. K. & Nielsen, B.J. (2017). Evaluation of models to control potato early blight (*Alternaria solani*) in Denmark. *Crop Protection* 102: 118-128. <https://doi.org/10.1016/j.cropro.2017.08.012>

CONFERENCE PAPERS & BOOK SECTIONS

1. Jørgensen, L. N., Heick, T. M., **Abuley**, I. K., Kemezys, A. H., & Kristjansen, H. S. (2022). *Applied Crop Protection 2021*. DCA - Nationalt Center for Fødevarer og Jordbrug. DCA rapport No. 204 <https://dcapub.au.dk/djfpublikation/index.asp?action=show&id=1489>.
2. **Abuley**, I. K., & Hansen, J. G. (2022). Comparative epidemiology of late blight and early blight on potato cultivars. In L. N. Jørgensen, T. M. Heick, I. K. Abuley, A. Hansen, & H. S. Kristjansen (Eds.), *Applied Crop Protection 2021* (pp. 80-83). Aarhus Universitet - DCA - Nationalt Center for Fødevarer og Jordbrug. DCA rapport No. 204.
3. **Abuley**, I. K., & Hansen, J. G. (2022). Validation of the BlightManager DSS for the control of late blight and early blight. In L. N. Jørgensen, T. M. Heick, I. K. Abuley, A. Hansen, & H. S. Kristjansen (Eds.), *Applied Crop Protection 2021* (pp. 72-79). Aarhus Universitet - DCA - Nationalt Center for Fødevarer og Jordbrug. DCA rapport No. 204.
4. **Abuley**, I. K., Hansen, J. G., & Hansen, H. H. (2021). Controlling late blight in susceptible and resistant potato cultivars with BlightManager. In L. N. Jørgensen, T. M. Heick, I. K. Abuley, P. K. Jensen, H. S. Kristjansen, & A. Hansen (Eds.), *Applied Crop*

Protection 2020 (pp. 92-96). Aarhus Universitet - DCA - Nationalt Center for Fødevarer og Jordbrug. DCA rapport No. 187.

5. Kristjansen, H. S., Jørgensen, L. N., & **Abuley, I. K.** (2021). Disease attacks in 2020. In L. N. Jørgensen, T. M. Heick, I. K. Abuley, P. K. Jensen, H. S. Kristjansen, & A. Hansen (Eds.), *Applied Crop Protection 2020* (pp. 11-16). Aarhus Universitet - DCA - Nationalt Center for Fødevarer og Jordbrug. DCA rapport No. 187.
6. **Abuley, I.K.**, J.G. Hansen, and P. Lassen, Results from the trap nursery network in Europe, in *Seventeenth Euroblight Workshop*, H.T.A.M. Schepers, Editor. 2019, Wageningen University: York, United Kingdom. p. 142-152.
7. Hansen, J.G., Lassen, P. and **Abuley, I.K.** 2019, IPM2.0: Test of a DSS including information from a trap nursery. in HTAM Schepers (ed.), *Proceedings of the seventeenth Euroblight Workshop*. Wageningen University, Wageningen, WUR Special Report, no. 19, pp. 105-113, *Seventeenth Euroblight Workshop*, York, United Kingdom, 12/05/2019.
8. Schepers, H., Hausladen, H., Hansen, J. G., **Abuley, I. K.**, Andersson, B., Liljeroth, E., ... Vanhaverbeke, P. (2019). Epidemics and control of early & late blight, 2017 & 2018 in Europe. In HTAM. Schepers (Ed.), *Proceedings of the seventeenth Euroblight Workshop: WUR Special Report no. 19* (pp. 11-34).
9. Schepers, H., Hausladen, H., Hansen, J. G., Nielsen, B. J., **Abuley, I. K.**, Andersson, B., Vanhaverbeke, P. (2017). Epidemics and control of early & late blight, 2015 & 2016 in Europe. In H. T. A. M. Scheepers (Ed.), *Proceedings of the sixteenth Euroblight Workshop: PAGV Special Report No. 18* (Vol. 18, pp. 11-32).
10. **Abuley, I. K.**, Nielsen, B. J., Bødker, L., & Nielsen, G. C. (2017). Timing the application of fungicides to control potato early blight (*Alternaria solani*) in multi-location field trials in Denmark. In H. T. A. M. Sheppers (Ed.), *Proceedings of the sixteenth Euroblight Workshop: PAGV Special Report No. 18* (Vol. 18, pp. 103-108).

GROWERS' JOURNALS/MAGAZINE

1. **Abuley, I. K.**, Hansen, J. G., & Hartvig, P. (2022). Biologisk bekæmpelse af kartoffelskimmel. *Dansk Kartoffelstivelse*, Februar 2022, 31. Årgang(1), 8-11.
2. Hansen, J. G., & **Abuley, I. K.** (2021). Nye skimmeltyper i 2020 - hvad betyder det og hvad kan man gøre? *Dansk Kartoffelstivelse*, 23-24.
3. Hansen, J. G., & **Abuley, I. K.** (2020). Nye skimmeltyper i Danmark betyder at vi skal ændre praksis. *Magasinet Danske Kartoffler*, April(2), 28-31.
4. **Isaac K. Abuley** & Lars Bødker (2020). Sædskifte og fungicid resistens er vigtige elementer ved bekæmpelse af kartoffelbladplet. *Danske kartofler*, April 2020, s. 10-13.

ORAL PRESENTATIONS

1. **Isaac Abuley**, Hans Hausladen, & Geert Kessel. [Late blight](#) and [early blight](#) in Europe in 2020 & 2021. Oral Presentation at the 18th Euroblight Workshop at Ascona, Switzerland, 9-12 May 2022.
2. **Isaac Abuley** & Jens G. Hansen. Management of Late blight with BlightManager DSS. Oral Presentation at the 18th Euroblight Workshop at Ascona, Switzerland, 9-12 May 2022.
3. **Isaac Abuley** & Jens G. Hansen. A Field Nursery Data Management system for the monitoring of the type, level and stability of host resistance. Oral Presentation at the 18th Euroblight Workshop at Ascona, Switzerland, 9-12 May 2022.

4. **Isaac Abuley** & Hansen G. Jens. Controlling late blight in resistant and susceptible potato cultivars. 2022. Oral presentation at the 21st EAPR Triennial conference at Krakow, 4-8 July 2022.
5. **Abuley IK** et al. (2021) The status of SDHI resistance in *Alternaria solani* isolates in Denmark. EuroBlight virtual workshop, 13 April 2021.
6. **Abuley IK** et al. (2020) Kartoffelbladplet: modeller, bekæmpelse og fungicidresistens. Hvad er perspektiverne? Kartoffelworkshop, SEGES, Konference Hotel Horizon, 3. December 2020.
7. Hansen, JG & **Abuley IK**. (2019). Skimmertyper fundet i første indsamlingskampagne i 2019. Flakkebjerg Open Field Day, 28 August 2019
8. Hansen, JG & **Abuley IK**. (2019) Genotypes of *P. infestans* in Denmark—changes during the season and implications for practice. Kartoffelworkshop, SEGES, 3 Konference Hotel Horizon, December 2019.