

Shadrack Kwaku Debrah, B.Sc., MPhil., Ph.D.

Department of Horticulture and Crop Production, School of Agriculture and Technology,
University of Energy and Natural Resources, P.O. Box 214, Sunyani-Ghana
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Professional objective

To leverage my expertise in entomology and research to develop simple and sustainable solutions for food and nutritional security using affordable technology in science.

Education

University of Energy and Natural Resources, Sunyani-Ghana **Dec, 2023**
Ph.D. Crop Science (Entomology option)
Thesis Topic: Palm weevil larvae (*Rhynchophorus phoenicis*) farming: Evaluation of conditions for on-farm and laboratory rearing in Southern Ghana
Supervisors: Prof. Daniel Obeng-Ofori; Dr. Jacob P. Anankware

University of Ghana, Greater Accra **July, 2016**
M.Phil. Agriculture Entomology.
Thesis Topic: African palm weevil (*Rhynchophorus phoenicis*) as a traditional food source among the Akans in Southern Ghana
Supervisors: Profs. Rosina Kyerematen and Kwame Afre-Nuamah

University for Development Studies (UDS) Tamale, N/R **July, 2013**
BSc. Agriculture Technology
Thesis Topic: Evaluation of effect of papain enzyme on Guinea fowl (*Numida meleagris*) meat.
Supervisor: Dr. Sallah Abdul-Rahim

Oda Senior High School, Akim Oda **June, 2008**
West African Senior School Certificate Examination

Research Interest

- Fruit fly monitoring and management.
- Monitoring of invasive species.
- Study of developmental stages of pests by micro-morphological changes.
- Entomological studies on various palm weevil species (*Rhynchophorus species*).
- Integrated pest management of the stored product insect pests.

Professional Experience

Lecturer **Jun. 2024 till date**
University of Energy and Natural Resources (Ghana)

Responsibilities:

- Develop and conduct high quality research
- Supervision of postgraduate and undergraduate students' research.
- Advance and enhance the teaching of undergraduate and postgraduate students

Project and Seminar Coordinator**Aug. 2024 to Aug. 2026****Responsibilities:**

- Managing timelines.
- Organise presentations for students.
- Follow up on the student's research activities.
- Facilitate communication between students and faculty.
- Providing support to students throughout the project lifecycle.

Consultancy**Feb. 2023 to Mar.2023**

Farms for Orphans: Lead Entomologist (DR. Congo)

Responsibilities:

- Developing protocol for mass rearing of African Palm Weevil Larvae
- Build a data collection system for farm operation
- Analyse data and report it weekly meeting
- Suggest experiment to solve problems that could impede production

Research Technologist**Nov. 2015 – Sep. 2020**

Aspire Foods Group, Ghana

Responsibilities:

- I developed a rearing technology for mass production of *R. phoenicis* larvae using agriculture by-products.
- Designed different prototypes (housing units and containers) for mass production of *R. phoenicis* larvae.
- Developed a degree-day model for all stages of African palm weevil larvae at the laboratory.

Technical Officer**Jan. 2014 – Mar. 2014**Fruit fly control technology dissemination and capacity building programme in West Africa.
Northern Ghana.**Responsibilities:**

- Identifying all fruit farmers in the allocated areas.
- Preparing a layout map for the farms in the allocated areas.
- Supervising the team and making sure the right data is collected.

- Training of farmers on the basic methods of controlling fruit flies.

Chairperson

Sep. 2018 – Sep. 2020

Research and Development Meetings. Aspire Foods Ghana. Kumasi, Ghana.

Responsibilities:

- Establish project goals and priorities by collaborating with management and operations.
- Monitor team metrics and objectives ensuring that set goals for the year are achieved.
- Document all phases of research and development and present the relevant information at the monthly meetings.

Teaching experience

Sep. 2020 – Date

Graduate Teaching Assistant

Department of Horticulture and Crop Production, University of Energy and Natural Resources.

Responsibilities:

- Handling top up courses
- Marking of assignments
- Assisting in supervision of undergraduate students' projects work.
- Preparation of manuscript for publications.
- Conducting research work

Research experience

- An Entomologist with over six years' experience in research design, prototyping, implementation, and evaluation of insects.
- An Entomologist with experience in rearing *Callosobruchus maculatus* and other major insect pests of stored products.
- An Entomophagist with experience in the evaluation of mating period, fecundity, hatching, larval development, adult eclosion, and the environmental conditions of *Rhychophorus phoenicis* larvae.

Skills and Competency

- **Computer and Statistical literacy:** Proficient in GenStat, Origin Pro, Microsoft Office Suite (Ms. Word, Excel, PowerPoint Presentation) and Adobe Photoshop.
- **Laboratory literacy:** Proficient in culturing insects and evaluation of biological pests control strategies. I am also skilled in the use of light microscopy (Axio Lab5), isolation of pathogens, and rearing of edible insects (African palm weevil and Black soldier flier).

Language literacy

- Proficient in English

Presentations

- African Palm Weevil *Rhynchophorus phoenicis*: A mini livestock in Southern Ghana. Graduate Research, Symposium, University of Ghana, July 2016.
- Morphological identification of palm weevil species in Southern Ghana. African Regional Postgraduate Programme in Insect Science. University of Ghana Campus, Accra, October 2021

Abstract

1. *Rhynchophorus phoenicis* Fabricius (Coleoptera: Curculionidae) production: a comparative study of different rearing protocols. Insects for the Green Economy Conference, Sustainable Food Systems and Livelihoods in Africa. *The African Institute for Capacity Development (AICAD) at Jomo Kenyatta University of Agriculture and Technology (JKUAT)*, Nairobi, Kenya, 28 - 29 February 2023. doi.org/10.5281/zenodo.12605312

Publications

1. Anankware, J. P., **Debrah, S.K.**, Asomah, S., Egonyu, J. P., Eilenberg, J., Roos, N., & Obeng-Ofori, D. (2023). Interactive effects of temperature and substrates on selected life history parameters of the African palm weevil *Rhynchophorus phoenicis* (Fabricius)(Coleoptera: Curculionidae). *Journal of Insects as Food and Feed*, 1, 1-14.
2. **Debrah, S.K.**, Anankware, J. P., Malinga, G. M., Asomah, S., and Obeng-Ofori, D. (2024). Variation in substrate nutritional composition and its effects on the growth, development, and nutrient composition of *Rhynchophorus phoenicis* (Fabricius) (Coleoptera: Curculionidae). *Journal of Insects as Food and Feed*, 1, 1-14.
3. Hermann, J.K., **Debrah, S.K.**, Anankware, and J.P. Obeng-Ofori D. (2023). Evaluation of different larval substrates on selected parameters of african palm weevil (*Rhynchophorus phoenicis*) (F.) (Coleoptera: Curculionidae). *International Journal Tropical Insect Science* 43(6), 2039-2044.
4. Siddiqui, S.A., Tettey,E., Yunusa, B.M., Ngah, N., **Debrah, S.K.**, Yang, X., Fernando, I., Povetkin, S.N., and Shah, M.A. (2023).Legal situation and consumer

acceptance of insects being eaten as human food in different nations across the world—A comprehensive review. *Comprehensive Reviews in Food Science and Food Safety*, 1–45

5. Asomah, S., Anankware, J.P., **Debrah, S.K.**, and Obeng-Ofori, D. (2023). Evaluation of different substrates on the life history parameters of African palm weevil, *Rhynchophorus phoenicis* (Coleoptera: Curculionidae) in Ghana. *Cogent Food & Agriculture*. 9:1
6. Alemu, M.H., Halloran, A., Olsen, S.B., Anankware, J.P., Nyeko, P., Ayieko, M., Kinyuru, J., Silvenus Konyole, S., Niassy, S., Egonyu, J.P., Malinga, G.M., Ng'ang'a, J., Ng'ong'a, C.A., Okeyo, N., **Debrah, S.K.**, Kiiru, S., Acur, A., & Roos, N. (2023). Promoting insect farming and household consumption through agricultural training and nutrition education in Africa: A study protocol for a multisite cluster-randomized controlled trial. *PloSone* , 18 (7), e0288870.
7. Aidoo, O. F., Osei-Owusu, J., Asante, K., Dofuor, A. K., Boateng, B. O., **Debrah, S. K.**, and Chia, S. Y. (2023). Insects as food and medicine: a sustainable solution for global health and environmental challenges. *Frontiers in Nutrition*, 10, 1113219.
8. **Debrah, S. K.**, Anankware, P. J., Asomah, S., and Ofori, D. O. (2022). Substrates: a solution to the mass production of African palm weevil (*Rhynchophorus phoenicis*) (F.) (Coleoptera: Curculionidae). *Journal of Insects as Food and Feed*, 1-8
9. **Debrah, S. K.**, Anankware, P. J., Asomah, S., and Ofori, D. O. (2022). Challenges associated with *Rhynchophorus phoenicis* Fabricius (Coleoptera: Curculionidae) farming: a case study of the Ejisu-Juaben Municipality. *Journal of Insects as Food and Feed*, 1-10.
10. Anankware, J.P., and **Debrah, S.K.** (2022). Influence of temperature on some selected life history parameters of the African Palm Weevil larvae *Rhynchophorus phoenicis*. Insects to Feed the World Conference. Quebec, Canada. *Journal of Insects as Food and Feed* 8 Supplement 1, S99. doi.org/10.3920/jiff2022.s1
11. **Debrah, S.K.**, Kyerematen, R., and Afreh-Nuamah, K. (2019) African palm weevil (*Rhynchophorus phoenicis*) A mini-livestock in Southern Ghana. *International Journal of Novel Research in Life Sciences Vol. 6, pp: (13-21)*
12. Baffour, E.K., **Debrah, S.K.**, Maaleku B.K., Asomah, S. and Adjei, P.Y. (2021). Impact of different packaging materials on the fruit quality of tomatoes from Akumadan (Offinso North District, Ashanti region of Ghana. *Agricultural Science Research Journal*. vol 11, (6):147-153

13. **Debrah, S.K.** (2016). Edible Insect as a traditional food source among the Akans in Southern Ghana. MPhil, University of Ghana, Accra, Ghana.

Conference Attended

- November 28 to December 6, 2021. Political Economy of Food and Agriculture, Department of Economics and Agribusiness University of Ghana. Partners University of Leeds, University of Ghana, University for Development Studies, and University of Cape Coast.
- 28 - 29 February 2023. Insects for the green economy conference, Sustainable Food Systems and Livelihoods in Africa. The African Institute for Capacity Development (AICAD) at Jomo Kenyatta University of Agriculture and Technology (JKUAT), Nairobi, Kenya

Fellowship Attended

- March 2- April 21, 2024. Ph.D Studies at Department of Nutrition Exercise and Sports, University of Copenhagen under the HEALTHYNSECT Project (DFC 19-08-KU)

Project and scholarship

- Won a Ph.D. scholarship grant from DKK 11,998,970 (US\$1.78 Million) grant from DANIDA to work on edible insects. Window 1 project “HEALTHYNSECT”, DFC File No. 19-08-KU. From April 01, 2020, to May 31, 2024

Community Services

- Reviewer for Agricultural Science Research Journal ISSN-L: 2026-6073 **Apr. 2016 – date**
- Reviewer for Journal of Insect as Food and Feed ISSN: 2352-4588 **Jun. 2018 - date**

Referees

1. **Prof. Daniel Obeng-Ofori**; Vice Chancellor; Catholic University of Ghana – Sunyani; Ghana; **Tel:** +233(0)242877113; **E-mail:** danielobengofori@yahoo.com
2. **Prof. Charles Adarkwah**; Department of Horticulture and Crop Production, School of Agriculture and Technology, University of Energy and Natural Resources (UENR) - Sunyani; Ghana; **Tel:** +233(0) 241251970; **E-mail:** charles.adarkwah@uenr.edu.gh
3. **Dr. Jacob Paarechuga Anankware**; Head of Department; Department of Horticulture and Crop Production, School of Agriculture and Technology, University of Energy and Natural Resources (UENR) - Sunyani; Ghana; **Tel:** +233(0) 246776156; **E-mail:** anankware@yahoo.com / jacob.anankware@uenr.edu.gh