

AKISSOE Fifamè Lorène
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Education

PhD in Nutrition and Food sciences, 2018-2021

- **School:** University of Abomey-Calavi (Benin) and University of Montpellier (France)
Research topic: Consumption of traditional cowpea-based dishes in Benin and Impact of processing on the nutritional quality of frequently consumed (cowpea-based doughnuts Ata and Ata-doco)

Master in Crops Production and Food sciences, 2015-2017

- **School:** University of Picardie Jules Verne, Amiens, France
Key lectures: Food process engineering, human nutrition, Food quality, Health-Safety Environment-Quality, Biodiversity, Statistics

Bachelor in Food sciences and technology, 2012-2014

- **School:** University of Abomey-Calavi, Benin
Key lectures: Human nutrition, study of African products (roots, tubers, cereals, fish, and legumes) processing into foods, Statistics

Research experience

Researcher in Biochemistry and Food sciences, Qualisud-UMR 95—CIRAD (Montpellier, France)

- Development of methods for antinutritional factor analysis (HPLC, HPIC) for the client NUTRISET
- Collaboration with NUTRISET's R&D team in identifying technological barriers
- Understanding of the impact of the industrial process on the quality of products

Postdoctoral fellow in Protein-plant based Products Formulation, USC GRAPPE-Groupe ESA, 1 year from 2021 to 2022

- Market-driven sourcing of raw materials (legumes)
- Designing and execution of shortcrust pastries formulation by using legume flours as ingredients.
- Validation of the recipe technical sheets with chefs
- Chemical, functional, textural and sensorial analyses of legume flours, dough, and shortcrust pastries

PhD in Nutrition and Food sciences, Qualisud-UMR 95—IRD, 3 years from 2018-2021

- African traditional processing application at laboratory scale : Experimental design of Cowpea-doughnuts Ata and Ata-doco
- Modeling of thiamine and alpha-galacto-oligosaccharide contents during cowpea gritz soaking

- Determination of proximate composition, thiamine, folate, minerals alpha-galactooligosaccharide contents in traditional cowpea-based dishes
- Food frequency questionnaire (FFQ) design definition
- Questionnaire programming on <https://www.surveymcto.com/>
- Food consumption survey (FFQ and Focus group) monitoring
- Coordination and supervision of three MSc students internship

Laboratory technician — Centre Technique de la Conservation des Produits Agricoles (CTCPA, Avignon, France), 4 months in 2017

- Determination of Vitamin C, Carotenoids, Polyphenols in vegetables
- Writing of analytical reports
- Monitoring and management of use of laboratory reagents

Master 2 internship, Qualisud-UMR 95—CIRAD (Montpellier, France), 6 months in 2017

- ➔ **Research topic:** Phase transitions of starch and protein from cowpea
Kinetics of water absorption of cowpea seeds during soaking and study of cowpea starch and proteins behavior using Differential Scanning Calorimeter.

Master 1 internship, Laboratoire de physiologie de la nutrition et du comportement alimentaire — Agroparistech (Paris, France), 2 months and half in 2016

- ➔ **Research topic:** Study of the bioavailability of milk and spirulina proteins
Development of method for determination of ^{13}C and ^{15}N enrichment in the amino acids from the proteins of the plasma, the liver and in the digestas (caecum) using Gas-Chromatography-Combustion-Isotopes Ratios Mass Spectrometry (GC-C-IRMS).

Bachelor internship, Société de Transformation des Produits Alimentaires -Tropical (STPA-Tropical) –Bénin, 3 months in 2014

- ➔ **Research topic:** Study of the production dairy products for local market
Formulation of yoghurt and dèguè (millet-based dairy beverage)

Technical Skills

- Biochemical Analysis, Functional and Textural Properties, Sensory Analysis
- Chromatographic Techniques (HPLC, UPLC, and HPIC)
- Component analyzed are: folates, thiamine, minerals, phytates, α -galactosides, and proximate composition (moisture, fat, protein, ash, fiber).
- Scientific Reporting: technical reports and research papers
- Project Management: Experience managing research projects from experimental design to reporting and dissemination.
- Supervision: Mentorship of student interns and junior researchers in laboratory and project-based environments.

- Research Communication: Effective presentation of scientific results to both expert and non-expert audiences.
- Advanced skills in: Rstudio, Statgraphics software, Zotero, Excel
- Fluent in French and English

Soft skills

- Adaptable and committed to continuous learning in dynamic research environments
- Strong team player, effective in collaborative and multidisciplinary settings
- Skilled in problem-solving and analytical thinking under pressure
- Clear and precise in technical and scientific communication
- Excellent time and task management, with a focus on prioritization
- Strong interpersonal skills
- High sense of ethical responsibility and research integrity
- Proven leadership in supervising students
- Culturally aware, with experience in international and cross-cultural environments

Publications

- **Akissoé, L.**, Hemery, Y.M., Madodé, Y.E., Icard-Vernière, C., Rochette, I., Picq, C., Hounhouigan, D.J., Mouquet-Rivier, C., 2023. Current Consumption of Traditional Cowpea-Based Dishes in South Benin Contributes to at Least 30% of the Recommended Intake of Dietary Fibre, Folate, and Magnesium. *Nutrients* 15, 1314. <https://doi.org/10.3390/nu15061314>
- **Akissoé, L.**, Icard-Vernière, C., Madodé, Y.E., Hemery, Y.M., Kpossilande, C.E., Mouquet-Rivier, C., Hounhouigan, D.J., 2022. Consumption of cowpea-based dishes in Benin: Main motives and barriers, and spatial and temporal changes. *Legume Science* 1–10. <https://doi.org/10.1002/leg3.146>
- **Akissoé, L.**, Madodé, Y.E., Hemery, Y.M., Donadjè, B.V., Icard-Vernière, C., Hounhouigan, D.J., Mouquet-Rivier, C., 2021. Impact of traditional processing on proximate composition, folate, mineral, phytate, and alpha-galacto-oligosaccharide contents of two West African cowpea (*Vigna unguiculata* L. Walp) based doughnuts. *Journal of Food Composition and Analysis* 96, 103753. <https://doi.org/10.1016/j.jfca.2020.103753>
- **Akissoe, L.**, Sautot, P., Mertz, C., Morel, G., Bohin, M., Avallone, S., Servent, A., 2025. Development of a Specific Fluorescence Post-column Derivatization Method Coupled with Ion-Pair Chromatography for Phytate Analysis in Food. *J. Agric. Food Chem.* 73, 880–889. <https://doi.org/10.1021/acs.jafc.4c09065>
- Coffigniez, F., Briffaz, A., Mestres, C., Akissoé, L., Bohuon, P., El Maâtaoui, M., 2019. Impact of soaking process on the microstructure of cowpea seeds in relation to solid losses and water absorption. *Food Research International* 119, 268–275. <https://doi.org/10.1016/j.foodres.2019.02.010>
- Lefèvre, C., Bohuon, P., **Akissoé, L.**, Ollier, L., Matignon, B., Mestres, C., 2021. Modeling the gelatinization-melting transition of the starch-water system in pulses (lentil, bean and chickpea). *Carbohydrate Polymers* 117983. <https://doi.org/10.1016/j.carbpol.2021.117983>

Conferences

- Oral communication: Rencontres Francophones sur les Légumineuses (RFL2, 2018)
- Oral communication: Global Food Security (GFS, 2020)
- Oral communication: Rencontres Francophones sur les Légumineuses (RFL3, 2021)
- Poster : 2nd NIZO Plant Protein Functionality Conference (NIZO, 2022)
- Poster : 14th International Congress on Engineering and Food (ICEF14, 2023)

Professional memberships

- Faculty of Agronomic Sciences of the University of Abomey-Calavi (FSA-UAC), Benin
- IRD - French National Research Institute for Sustainable Development, France
- CIRAD - Agricultural Research for Development, France
- Groupe ESA - Higher Education and Research Institution in Agriculture, France

References

| Name | Fonction | Contact information | Relation |
|-----------------------|----------------------------|---|---|
| Claire Mouquet-Rivier | Research fellow | claire.mouquet@ird.fr +33.4.67.41.62.95 UMR Qualisud, IRD 911 avenue d'Agropolis 34394 Montpellier | Principal investigator (PhD direction) |
| D. Joseph Hounhouigan | Professor in Food sciences | joseph.hounhouigan@gmail.com Faculté des Sciences Agronomiques, Université d'Abomey-Calavi, Benin | Principal investigator (PhD co-direction) |
| Youna Hemery | Research fellow | youna.hemery@ird.fr +33.4.67.41.62.48 UMR Qualisud, IRD 911 avenue d'Agropolis 34394 Montpellier | PhD supervisor |
| Christèle Vernière | Research fellow | christele.verniere@ird.fr +33.4.67.41.62.80 UMR Qualisud, IRD 911 avenue d'Agropolis 34394 Montpellier | PhD supervisor |
| Christian Mestres | Research fellow | christian.mestres@cirad.fr UMR Qualisud, CIRAD TA B95/16 - 73 rue Jean-François Breton 34398 Montpellier | Master 2 internship supervisor |