

Curriculum Vitae

Mayi Marie Paul Audrey, PhD, Vector Ecologist and Parasitologist

Personal statement

Principal Investigator of different projects on the impact of environmental changes on mosquitoes, with already 13 publications in peer review journals. Ability to manage projects and to keep accurate laboratory records. Excellent working knowledge on insecticide susceptibility tests, mosquito collection, rearing, identification, mosquito midgut and salivary gland dissections, bird mist-netting, banding and bleeding, blood film preparation and preservation, blood pathogens identification and quantification; DNA extraction from vertebrate blood, mosquitoes and other vectors; PCR analyses; knowledge on bioinformatics, sequencing and phylogenetics. Excellent computer and statistical skills; ability to analyse data using R and endowed with programming and modelling capabilities; working knowledge of Microsoft tools. Excellent manuscript and grant writing skills. Good team spirit with strong organizational and adaptability skills as well as good interpersonal, hardworking, fast learning, and independent skills. Category “B” driving licence. Speaking and writing both English and French.

Education

- Ph.D. Animal Biology, Option: Parasitology, Specialism: Mosquito Ecology and Vector borne diseases, August 2020
University of Dschang, Cameroon
Thesis Title: “Effect of deforestation on the biodiversity and vector role of *Culex* mosquitoes in Talangaye Rainforest, South-West Region of Cameroon
- M.S. Animal Biology, Option: Parasitology, Specialism: Medical Entomology, July 2015
University of Dschang, Cameroon
Research topic: Effect of blood meal source on the oviposition rate of *Aedes aegypti* (Diptera: Culicidae);
- B.S. Animal Biology, Zoology, June 2011
University of Dschang, Cameroon

Experience

Trainee, Biology of Parasitism (pending) June 2022 to August 2022
Marine Biological Laboratory (MBL), Woods Hole, USA.

- “Insect vector dissections, mounting and visualizations of parasites using IFA”
- “DNA extraction, PCR analyses and Nanopore Sequencing using MINION”
- “Data analysis and acquisition”
- “Insect microbiota analysis using FISH”
- “Bioinformatics”
- “Cell and Molecular Biology”, parasite culture, SRA, ELISA
- “Host Immune Responses to Parasite Infection”

Data analyst and assistant October 2020 to October 2021
Organisation de Coordination pour la lutte contre les Endémies en Afrique Centrale (OCEAC), Yaounde-Cameroon.

- “Statistical analysis of data, resulting in co-authored publications”
- “Assisted in field and laboratory work of projects”

- Gained hands on experience on insecticide susceptibility tests and molecular techniques”

Monitoring and Evaluation Officer of projects at M.A. SANTE Jan to December 2021
Meilleurs Accès aux soins de Santé (M.A. SANTE) Yaounde, Cameroon

- “Monitored and supervised field and laboratory activities of projects in diseases surveillance and epidemiology”

Trainee, GCRF Research and Grant Writing Workshops August to September 2021
Yaounde, Cameroon

This training is a supplement to a training I received in August 2019 through the PEER Project Workshop and in 2021 through AREF on grant writing skills, proposals and manuscripts writing

- “Got guidelines and tips to guarantee manuscripts acceptance in high impact factor journals, in addition to the grant writing skills”
- “Have track records of authored and co-authored publications (13) in PEER review journals with others submitted and in preparation”

Trainee, Advanced training in statistical analyses using R software April to September 2021
University of Glasgow, United Kingdom

- “Improved knowledge and skills in statistics”
- “Analysed M.S. and Ph.D. students data, contributed to their graduations and publications”

Trainee, Training of field supervisors, Mogode OCV Booster-Dose Study (MOBS) Jan 2021
Yaounde, Cameroon

- “Developed skills on procedures and tools for communication, data collection, transmission, management and validation during project implementation”

Field Investigator, KAP investigations on malaria and mosquitoes survey under the Project Gates “Malaria surveillance in different eco-epidemiological settings in Cameroon” Feb 2018-Nov 2020, Cameroon

- “Conducted questionnaire administration in the community, collected mosquito larvae for insecticide susceptibility tests, collected adult mosquito vectors in rural and urban areas for parasites detection”

Trainee, PEER project Workshop on Bioinformatics, sequencing and Phylogenetics Apr 2018
Buea, Cameroon

- “Acquired knowledge and practicum in sequence editing and analyses, and phylogenetic tree construction”

Trainee, Advanced training on mosquito systematics and various identification techniques at the Mosquito Research Laboratory December 2017
California, Davis, USA

- “Acquired strong skills in systematics”
- “Contributed to capacity building of students and carried out few projects by myself”

Trainee, Training on molecular identification of parasites from bird and mosquito samples
January 2017, Buea, Cameroon

This is a supplement to the training I received in 2014 during an International Workshop on Malaria and Related Haemosporidian Parasites of Wildlife in Yaoundé, Cameroon.

- “Acquired practical knowledge on blood film preparation and preservation in the Laboratory; Blood pathogens identification and quantification; DNA extraction on vertebrate blood and mosquitoes; PCR methods for pathogens screening and DNA sequencing”
- “Successfully carried out and defended my Ph.D research work and other research projects that involved molecular work, resulting in peer-reviewed publications”

Trainee, PIRE Professional Development Workshop CBI/IITA/CRESA

July 2016

Yaounde, Cameroon

- “Integrated biological, socioeconomic data and modelling for conservation planning in Central Africa”
- GIS analysis

Honors and Awards

- Academic excellence award, State of Cameroon 2011 to 2020
- Grant awards, NGS, CARN, Idea Wild 2017, 2018
- First of my promotion from Undergraduate level to Ph.D. Level

Funding Sources/Grants Awarded

- "Using geospatial tools to investigate how deforestation affects the transmission of malaria in birds", Anong. D. Nota (PI), USAID PEER (Partnerships for Enhanced Engagement in Research) project 4-360, field and laboratory material for my Ph.D studies
- Me (PI), National Geographic Society (NGS) grant -Expand the field Support for Women & Dependent Care – 1399 \$9090 to me
- “Impact of real time deforestation on the diversity and abundance of mosquito vectors in a Cameroonian rainforest”, Me (PI), National Geographic Society (NGS)-WW-117ER-17), \$5000 to me
- “Mosquitoes as bio-indicators of forest degradation and environmental health in the South West Region of Cameroon”, Me (PI), Conservation Action Research Network (CARN), \$5000 to me
- “Impact of deforestation on the diversity and abundance of mosquitoes: potential threats to the Cameroonian rainforest birds”, Me (PI), Idea Wild, \$800 field equipment to me
 - “Developed both technical and leadership skills”
 - “Led teams in the field and in the laboratory”
 - “Collected and analyzed data from the field and laboratory”
 - “Organized and coordinated meetings, ensuring targets were met and reports completed in advance”

Supervisory and Mentoring Experience

- Mentor of Ph.D. students, Cameroon, University of Dschang, University of Yaounde, Cameroon, 2019 to present
- Mentor of M.S. students, University of Buea, Cameroon 2017 to 2020

Teaching

- “Biology and Systematics of mosquitoes”, University of Dschang, Cameroon 2016-2021
- “Entomology, Embryology, Histology”, University of Dschang, Cameroon 2013-2015

Committee Service

- Member of Pan-African Mosquito Control Association Cameroon 2021
- Member of the R statistical analyses club, University of Dschang 2019 to present

- Member of the Society for Conservation Biology Cameroon Chapter (SCB) 2018-2019
- Class Delegate - Years II and IV of the Parasitology Major, University of Dschang, Cameroon, 2011-2011
- Member of the Animal Biology Club of the University of Dschang, Cameroon 2011

Publications

1. Djoufounna J., **Mayi M.P.A.**, Bamou R., Ningahi L.G., Magatsing F.O., Djiappi-Tchamen B., Landre Djamouko-Djonkam L., Antonio-Nkondjio C. and Tchuinkam T (2022). Larval habitats characterization and population dynamics of *Culex* mosquitoes in two localities of the Menoua Division, Dschang and Santchou, West Cameroon. *The Journal of Basic and Applied Zoology* (2022) 83:30. <https://doi.org/10.1186/s41936-022-00290-x>
2. Forfuet F.D., **Mayi M.P.A.**, Fru-cho J., Kowo C., Anong D.N., Andongma E., Djomo C., Tchuinkam T., Brisco K., Sehgal R.N.M. and Cornel A.J. (2022). Efficacy of Trapping Methods in the Collection of Eretmapodites (Diptera: Culicidae) Mosquitoes in an Afrotropical Rainforest Region, South western Cameroon. *Journal of Medical Entomology*, 1–10.
3. Bamou R., Diarra A.Z., **Mayi M.P.A.**, Djiappi-Tchamen B., Antonio-Nkondjio C. and Parola P. (2021). *Wolbachia* Detection in Field-Collected Mosquitoes from Cameroon. *Insects*, 12, 1133. <https://doi.org/10.3390/insects12121133>.
4. Bamou R., **Mayi M.P.A.**, Djiappi-Tchamen B., Nana-Djangwo S.M., Nchoutpouen E., Fontaine A., Cornel A.J., Awono-ambene P., Tchuinkam T. and Antonio-Nkondjio C. (2021). An update on the mosquito fauna and mosquito borne diseases distribution in Cameroon. *Parasites and Vectors Journal*, 14(527): <https://doi.org/10.1186/s13071-021-04950-9>.
5. Djiappi-Tchamen B., Nana-Ndjangwo M.S., Tchuinkam T., Makoudjou I., Nchoutpouen E., Kopya E., Talipouo A., Bamou R., **Mayi M.P.A.**, Awono-Ambene P., Wondji C. and Antonio-Nkondjio C. (2021). *Aedes* Mosquito Distribution along a Transect from Rural to Urban Settings in Yaoundé, Cameroon. *Insects*, 12, 819. <https://doi.org/10.3390/insects12090819>.
6. Antonio-Nkondjio C., Doumbe-Belisse P., Djamouko-Djonkam L., Ngadjeu C.S., Talipouo A., Kopya E., Bamou R., **Mayi M.P.A.**, Sonhafouo-Chiana N., Nkahe DL., Tabue R., Achu Fosah D., Bigoga J.D., Awono-ambene P. and Wondji Charles S. (2021). High efficacy of microbial larvicides for malaria vectors control in the city of Yaounde Cameroon following a cluster randomized trial. *Scientific Reports*, 11:17101 <https://doi.org/10.1038/s41598-021-96362-z>.
7. Kala Chouakeu N.A., Ningahi L.G., Bamou R., Talipouo A., Ngadjeu C.S., **Mayi M.P.A.**, Kopya E., Awono-ambene P., Tchuinkam T. and Antonio-Nkondjio C. (2021). Knowledge, attitude and practices (KAP) of human populations towards malaria control in four ecoepidemiological settings in Cameroon. *Journal of Tropical Medicine*, Volume 2021, Article ID 9925135, 1-11p.
8. Djiappi-Tchamen B., Nana-Ndjangwo S.M., Konstantinos M., Talipouo Abdou, Nchoutpouen E., Makoudjou I., Bamou R., **Mayi M.P.A.**, Awono-Ambene P., Tchuinkam T., John Vontas and Antonio-Nkondjio Christophe (2021). Analyses of Insecticide Resistance Genes in *Aedes aegypti* and *Aedes albopictus* Mosquito Populations from Cameroon. *Genes*, 12 (828): 1-13p.
9. Bamou R., Nematchoua-Weyou Z., Lontsi-Demano M., Ningahi L.G., Tchoumbou M.A., Defo-Talom B.A., **Mayi M.P.A.** and Tchuinkam T (2021). Performance assessment of a widely used rapid diagnostic test CareStart™ compared to microscopy for the detection of Plasmodium in asymptomatic patients in the Western region of Cameroon. *Heliyon* 7 (2021) e06271.
10. **Mayi M.P.A.**, Bamou R., Djiappi-Tchamen B., Fontaine A., Jeffries C.L., Walker T., Antonio-Nkondjio C., Cornel A.J. and Tchuinkam T. (2020). Habitat and seasonality affect mosquito community composition in the West Region of Cameroon. *Insects*, 11(312);

11. Cornel A.J., Mayi M.P.A., Kowo C., Foncha D., Andongma E., Anong D.N., Elad M., Djomo C., Tchuinkam T., Brisco K. K. and Sehgal R.N.M. (2020). New species of *Culex* (*Culiciomyia*) (Diptera: Culicidae) from Talangaye Forest in Cameroon and descriptions and identification keys for males of the Afrotropical species of the subgenus. *Zootaxa* 4858 (4): 451–506.
12. Tchoumbou M.A., Mayi M.P.A., Malange E.N.F., Foncha D.F., Kowo C., Fru-cho J., Tchuinkam T., Awah-Ndukum J., Dorazio R., Anong D., Cornel A.J. and Sehgal R.N.M. (2020). Effect of land use change on mosquito abundance and prevalence of avian haemosporidian parasites in a tropical rainforest of Cameroon. *International Journal for Parasitology*, 50: 63-73.
13. Mayi M.P.A., Foncha D.F., Kowo C., Tchuinkam T., Brisco K., Anong D.N., Sehgal R.N.M. and Cornel A.J. (2019). Impact of deforestation on the abundance, diversity, and richness of *Culex* mosquitoes in a southwest Cameroon tropical rainforest. *JVE*, 44(2): 271-281.
14. Mayi M.P.A., Bamou R., Djiappi-Tchamen B., Djojo-Tachegoum C., Fontaine A., Antonio-Nkondjio C. and Tchuinkam T. (2019). A mosquito survey along a transect of urbanization in Dschang, West Region of Cameroon, reveals potential risk of arbovirus spillovers. *Preprint*. doi:
15. Djepand-Ngognouak Thierry., Djamouko-Djonkam Landre., Foko Dadjji G., Mayi M.P.A., Tchuinkam T., Zébazé-Togouet S.H., Wondji C.S. and Antonio-Nkondjio C. Assessment of the impact of the biological larvicide VectoMax G on non-target aquatic organisms. *Submitted*.
16. Talipouo A., Doumbe-Belisse P., Ngadjeu C.S., Djamouko-Djonkam L., Nchoutpouen E., Bamou R., Sonhafou-Chiana N., Mayi M.P.A., Dadjji Foko G., Awono-Ambene P., Kekeunou S., Wondji C.S. and Antonio-Nkondjio C. Does larviciding intervention targeting malaria vectors also affect *Culex* mosquito species in the city of Yaoundé, Cameroon? *Submitted*.
17. Djoufounna J., Bamou R., Mayi M.P.A., Kala-Chouakeu N.A., Tabue R., Awono-Ambene P., Ashu D., Antonio-Nkondjio C. and Tchuinkam T. Population knowledge, attitudes and practices towards malaria prevention in the locality of Makenene, Centre-Cameroon. *Submitted*.
18. Ouaba J. et al. "Domestication and optimization of the breeding yield of laboratory colony of *Culex quinquefasciatus* (Diptera: Culicidae)". *Submitted*.
19. Joel Djoufounna J., Mayi M.P.A., Bamou R., Foyet JV., Tabue R., Lontsi-Demano M., Achu-Fosah D., Antonio-Nkondjio C. and Tchuinkam T. High prevalence of asymptomatic *Plasmodium falciparum* malaria in Makenene, a locality in a forest-savannah transition zone, Centre region, Cameroon. *In preparation*.

Conferences

- Virtual PAMCA Annual Conference & Exhibition; September 20-22, 2021
- 2nd annual conference of Pan-African Mosquito Control Association (PAMCA), Red Cross, Yaoundé, Cameroon; July 2021; Theme: Strengthening capacities for integrated control of vector borne diseases in Cameroon;
- 1st International Electronic Conference on Entomology (IECE); July 2021
- 1st annual conference of Pan-African Mosquito Control Association (PAMCA), OCEAC, Yaoundé, Cameroon; January 2018; Theme: Efforts towards elimination of Vector borne diseases;
- 24th annual Conference of Cameroon Bioscience (CBS), University of Buea, Cameroon; November-December 2017; Theme: Research in Bioscience for the Emergence of Cameroon;
- 21st African Association of Insect Scientists (AAIS) Conference, Cotonou, Benin; October 2015; Theme: Impacts of climate change on Insects in Africa: opportunities and threats.

Invited Talks

Grant (CARN) report, “Mosquitoes as bio-indicators of forest degradation and environmental health in the South West Region of Cameroon”; Invited talk at CBI/IITA/CRESA Yaoundé, Cameroon, June 2018.