



Aquaculture and sustainable development in Benin: role and challenges of the University of Parakou

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(*SyPiex; SIARP, AquaTox, ...*)

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Valorization and dissemination

➤ Main public University in northern Benin

➤ 2nd largest University
in Benin

➤ More than 22,000 students in 2019-2020

➤ 11 research and training entities (Faculty,
Instituts or High School)

- *Law, political sciences and international relations*
- *Economics and Management*
- *Statistics, Demography and Planification*
- *Letters and Human Sciences*
- *Health*
- *Technology*
- *Agronomy*

1. UNIVERSITY OF PARAKOU

<http://univ-parakou.bj>

2. FACULTY OF AGRONOMY



FACULTY OF AGRONOMY

05
Departments

Vegetable
Production

Animal and
Fishery production

Rural Economics
and Sociology

Nutrition and
Food Science

Management of
Natural Resources

LaRAEAq

3. LARAEAQ

Education

**Bachelor in Animal and
Fisheries Production**

**Master in Aquaculture and
Aquatic Ecotoxicology**

**PhD in Aquaculture and
Aquatic Ecotoxicology**

**Training / advisory support for farmers
and local decision-makers**



LARAEAQ

Main research areas

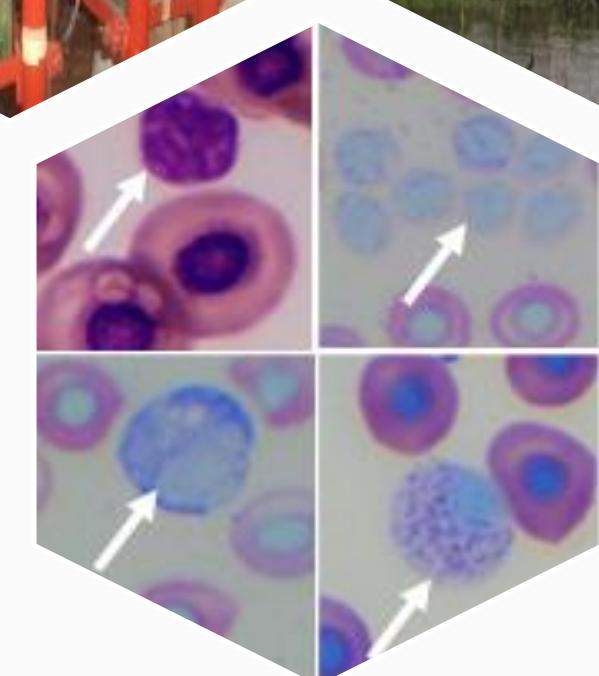
1. Aquaculture and innovation

2. Aquatic Ecotoxicology

3. Sustainable management of wetlands

4. Aquatic Ecology and Biology

5. Quality of fishery products



AQUACULTURE

Main research topics



1. Innovative aquaculture systems
(aquaponics, cage culture, ...)

2. Nutrition and feeding (*use of agro-industrial by-products in aquaculture, ...*)

3. Assessment / domestication of local aquaculture species

4. Agro aquaculture

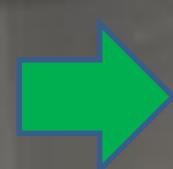
ECOTOXICOLOGY

Main research topics

1. Pesticides and aquatic ecosystems
2. Biomarkers approach (*immunotoxicity, neurotoxicity, reprotoxicity, oxidative stress, detoxification system, histopathology, ...*)
3. Biomonitoring and bioassessment
(*experimental and In situ studies*)
4. Environmental Risk Analysis (ARE)



4. EXPERIENCE AT COMMUNITY LEVEL



Projet SYPIEX



Projet Whedos



Projet AquaTox-Bénin

« Influence des pratiques phytosanitaires en milieu cotonnier sur l'agro-système aquatique et la qualité sanitaire des poissons produits dans les retenues d'eau au nord Bénin »

(www.aquatox-benin.be)



In Aquaculture

5. MAIN PUBLICATION

1. Pèlèbè E.O.R., Imorou Toko I., Ouattara N.I., Tougan P.U., Attakpa Y.E., Fall J. & Montchowui H.E. (2020). Sanitary quality improvement of fish produced in the northern Benin cotton basin water reservoirs by cage culture and fish transfer in agricultural contaminant-free water: human health implications. Tropical Animal Health and Production <https://doi.org/10.1007/s11250-020-02397-1>
2. Pèlèbè E.O.R., Imorou Toko I., Ouattara N.I., Attakpa Y.E., Fall J., Montchowui H.E. & Ble M.C. (2020). Growth performance and nutritional quality of Nile tilapia caged in Northern Benin water reservoirs exposed to agricultural effluents. Aquaculture Studies 20: 45-54. http://doi.org/10.4194/2618-6381-v20_1_06
3. Imorou Toko I., Fiogbe E.D. & Kestemont P. (2008). Growth, food efficiency and body mineral composition of juvenile vundu catfish (*Heterobranchus longifilis*, Valenciennes 1840) in relation to various dietary levels of soybean or cottonseed meals. Aquaculture Nutrition, 14, 193-203.
4. Imorou Toko I., Fiogbe E.D. & Kestemont P. (2008). Mineral status of African catfish (*Clarias gariepinus*) fed diets containing graded levels of soybean or cottonseed meals. Aquaculture, 275, 298-305.
5. Imorou Toko I., Fiogbe E.D. & Kestemont P. (2008). Determination of Appropriate age and stocking density of vundu larvae, *Heterobranchus longifilis* (Valenciennes 1840), at the weaning time. Aquaculture Research, 39, 24-32.
6. Imorou Toko I., Fiogbe E.D., Koukpode B. & Kestemont P. (2007). Rearing of African catfish (*Clarias gariepinus*) and vundu catfish (*Heterobranchus longifilis*) in traditional fish ponds (whedos): effect of stocking density on growth, production and body composition. Aquaculture, 262, 65-72.
7. Kestemont P., Xueliang X., Hamza N., Maboudou J. & Imorou Toko I. (2007). Effect of weaning age and diet on pikeperch larviculture. Aquaculture, 264, 197-204.
8. Imorou Toko I., Fiogbe E.D. & Kestemont P. (2007). Essai d'élevage de *Clarias gariepinus* (Burchell, 1822) en « whedos » au Bénin ; In Proceedings of the Third International Conference on African Fish and Fisheries, Cotonou, Benin, 10-14 November 2003 (Ed. J. Snoeks, P. Lalèyè & P. Vandewalle). Journal of Afrotropical Zoology, Issue special, 193-197.

In Ecotoxicology

5. MAIN PUBLICATION

1. Houndji M.A.B., Imorou Toko I., Guedegba L., Yacouto E., Agbohessi P.T., Mandiki S.N.M., Scippo M-L. & Kestemont P. (2020). Joint toxicity of two phytosanitary molecules, lambdacyhalothrin and acetamiprid, on African catfish (*Clarias gariepinus*) juveniles. *Journal of Environmental Science and Health, Part B*, 55(7): 669-676.
2. Guedegba N.L., Imorou Toko I., Agbohessi P.T., Zoumenou B., Brose F., Mandiki S.N.M., Schiffers B., Scippo M-L. & Kestemont P. (2019). Comparative acute toxicity of two phytosanitary molecules, lamda-cyhalothrin and acetamiprid, on Nile tilapia (*Oreochromis niloticus*) juveniles. *Journal of Environmental Science and Health, Part B* 54(7): 580-589.
3. Gouda A-I., Imorou Toko I., Imorou Idrissou M., Spanoghe P., Scippo M-L., Sidi Z., Djagbe T., Kestemont P. & Schiffers B. (2019). The Transfer of Insecticides Used in Cotton Production to Aquatic Ecosystems in the Cotton Basin in Northern Benin. *International Journal of Scientific Research in Environmental Science and Toxicology* 4(1): 2572-3162.
4. Gouda A-I., Imorou Toko I., Salami S-D., Richert M., Scippo M-L., Kestemont P. & Schiffers B. (2018). Pratiques phytosanitaires et niveau d'exposition aux pesticides des producteurs de coton du nord du Bénin. *Cahiers Agricultures* 27 : 65002
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9. Agbohessi T.P., Imorou Toko I., N'Tcha I., Geay F., Mandiki S.N.M. & Kestemont P. (2014). Exposure to agricultural pesticides impairs growth, feed utilization and energy budget in African Catfish *Clarias gariepinus* (Burchell, 1822) fingerlings. *International Aquatic Research* 6: 229-243.
10. Agbohessi P.T., Imorou Toko I., Houndji A., Gillardin V., Mandiki S.N.M. & Kestemont P. (2013). Acute toxicity of agricultural pesticides to embryo-larval and juvenile African catfish *Clarias gariepinus*. *Archives of Environmental Contamination and Toxicology* 64(4): 692-700.
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THANKS YOU

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