

# Séminaires inter-sites BOREA



Plant extract fed sex reversed male tilapia  
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> JEUDI 8 DÉCEMBRE 2022, 16H (PARIS), 11H (ANTILLES)

## Sex Differentiation in Fish: From Sex Reversal in Teleost to Sex Determination in Elasmobranch

« During my doctoral work in Department of Zoology, University of Calcutta, India, I had applied phytochemicals to achieve sex reversal in Nile tilapia (*Oreochromis niloticus*) a globally popular teleost fish. Male tilapias are preferred sex for aquaculture than female as they grow bigger. So, aquafarmers applied synthetic steroid hormones like 17 $\alpha$ -methyltestosterone (MT) to achieve all male tilapia population. But this MT has several detrimental effects on fish health, consumer and environment. It causes paradoxical feminization to the non-target aquatic organisms. So, I substitute the application of MT with some Indian medicinal plants reported to have aphrodisiac potential. I have found these plant materials are effective to create maleness (~90%) in mixed-sex tilapia (Ghosal *et al.* 2015; JAPS Ghosal *et al.* 2021; Aquaculture Research).

Now I have joined BOREA, University of Caen as a postdoctoral researcher in Winning Normandy postdoctoral fellowship entitled "[Gonadal development and Effect of temperature on Sex determination in the Small-spotted catshark](#)". Sex determination is poorly explored in Chondrichthyes. Sex determination in this group is mostly restricted to cytogenetic approaches. However, no investigation was performed regarding the expression pattern of those sex-linked alleles neither to determine their cellular localisation in gonads, nor to characterize their kinetic of expression in the embryo to assess their possible involvement in sex determination. In addition to genetic sex determination, various environmental parameters like temperature can also affect the sex. Environmental sex determinism has never been investigated in Chondrichthyes, which does not allow us to anticipate which consequences the global climate change will have on these animals. Considering this, the proposed project aims to understand the gonad ontogeny, sex determination and differentiation in the small-spotted catshark ».

par **Indranath Ghosal**, post-doctorant UCN, équipe EMERGE,  
**Université de Caen Normandie**

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@ Contacts

E. Bézault, [ebezault@univ-ag.fr](mailto:ebezault@univ-ag.fr)  
I. Mouas, [isabelle.mouas@mnhn.fr](mailto:isabelle.mouas@mnhn.fr)

> Prochainement

> Jeudi 19 janvier 2023. Axe transversal  
'Dispersion, migration des organismes  
aquatiques' par Nicolas Rabet et Céline  
Bonillo.