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## Variation in intestinal microbiome of channel catfish (*Ictalurus punctatus*) across ontogeny

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Research on pre and probiotics in aquaculture has been limited by a lack of basic knowledge regarding intrinsic fluctuations that occur in the intestinal microbiome (IM) of fish across developmental ontogeny. Without such knowledge, delineating the significance of modifications to the IM or identifying dysbiosis may be difficult because data is lacking on the natural variations that occur within the microbial community. To improve our knowledge, this study characterized the IM of a single family of the important US. aquaculture species, channel catfish *Ictalurus punctatus*, under controlled conditions. Samples were taken at 2, 64, 124, and 193 dph. Sac-fry (2 dph) were ground whole while at all other time points the entire intestinal tract was removed and homogenized using sterile procedures (n=10). Adherent and allochthonous IM DNA along with DNA from all feeds and tank water was then extracted and added to the Fluidigm Access Array for PCR amplification of the 16S rRNA gene, barcoded primer addition and library preparation for identification of bacterial, fungal and archaeal biota. Sequencing was performed on the MiSeq 2000 and data were analyzed using QIIME with the Green genes database for cross-referencing of operational taxonomic units. Ontogenetic changes in the IM may be attributed to host immunity-IM interactions plus changes in diet formulations. These results enable a better understanding of the homeostatic variation of the IM allowing more accurate interpretations of shifts caused by exogenous influences. This data set may also be used in the future to identify candidate microbial species for use as probiotics.

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## Aquariculture as a livelihood option for rural women in India

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Aquarium fish keeping has become a popular hobby and aquarium fish selling is recently gaining popularity as a trade in India. Ornamental fish trade can play a significant role in the economy of developing countries like India both as a foreign exchange earner and as a potential source for rural employment generation. Aquariculture form an important commercial component of aquaculture providing for aesthetic requirement and sustainability of the environment. Small scale aquariculture can augment the production of live bearers leading to the uplift of socio-economic conditions of women in India. Despite the enormous species availability ornamental fish culture is not promising in India when compared to South East Asian countries. In spite of having vast potential, domestic and international demand the sector has not received due attention either from research or by the industry and calls for systematic cataloguing of potentially important ornamental fish varieties, detailed study on their biology and behavior, breeding and husbandry. Although Andhra Pradesh ranks first in aquaculture it remained untapped in the area of aquariculture. The irregularities in the earning patterns of their men counter parts coupled with need for livelihood sustainability force most of the women to earn from a variety of fishery related activities like ornamental fishery and its allied sectors. Women as entrepreneurs can contribute much to the national productivity, generate employment opportunities, develop economic independence, improve standard of living leading to self confidence, enhanced awareness and sense of achievement. As such women fit into this particular entrepreneurial avenue owing to their enormous innate patience provided they are trained. Considerable effort is needed to capture the existing and latent entrepreneurial potential of women in this sector.

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