

## **Bacterial microflora of the african catfish (*Clarias gariepinus*) juveniles raised under fish cum pig integrated farming system in freshwater earthen ponds during the dry season.**

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### **Abstract**

The bacterial microflora of a fish cum pig integrated farming system was examined during the dry season months of November to March. *Clarias gariepinus* fingerlings of 9.2g mean weight were stocked at a density of 5 fingerling m<sup>-2</sup> in three freshwater earthen ponds of 200m<sup>2</sup> surface area each that were fed 175gm<sup>-1</sup> fresh pig manure as the major nutrient source till they reached juveniles of 341.6g mean weight within the period. Standard methods of bacterial identification and confirmation were conducted on fish organs such as the fin, skin, gill, intestine, liver as well as the original pig manure resource, pond water and pond sediment to determine microbial quality. The gram negative bacteria identified were Citrobacter, Escherichia, Yersinia, Campylobacter, Enterobacter, Serratia, Pseudomonas, Klebsiella, Proteus, Aeromonas, Vibrio and an Unidentified gram negative bacterium while the gram positive bacteria were Lactobacillus, Corynebacterium, Listeria, Streptococcus, Bacillus, Staphylococcus and Nocardia. The highest heterotrophic plate count of 1.40x10<sup>15</sup>cfug<sup>-1</sup> was obtained from pig manure samples, 1.58x10<sup>13</sup>cfug<sup>-1</sup> for the pond sediment but 1.20x10<sup>8</sup> cfug<sup>-1</sup> for the pond water. For the fish organs, mean plate count for the skin was 4.20x10<sup>9</sup>cfug<sup>-1</sup> in contrast with 2.30x10<sup>12</sup>cfug<sup>-1</sup> for the intestine, 1.40x10<sup>10</sup>cfug<sup>-1</sup> for the gill, 3.30x10<sup>9</sup>cfug<sup>-1</sup> for the fin while the lowest tissue count of 3.50x10<sup>5</sup> was obtained for the fish liver. While there was no general physical presentation of dermal lesions, the gill tissues were necrosis with haemorrhage of intestinal mucosa. The bacteria of economic and health importance encountered in this study were from varied sources, but the pig manure was the main source of Kliebsiella and Proteus while the pond water was the source of Nocardia and the unidentified gram negative bacterium. It was recommended that alternative means of improving fish pond fertility be exploited.

### **Keywords:**

Bacteria, *Clarias gariepinus*, Juvenile, Pig manure, Fish pond, Dry Season