

## Dna Barcoding Of Selected Fin Fishes From Imo River In Rivers State, South South Nigeria Using Cytochrome C Oxidase Subunit 1 Gene

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**Abstract :** The continuous decline in biodiversity is worrisome. This decline is predominant in fish population. Although taxonomy has been an age-long field of science, there are still undiscovered members of species and new species are waiting to be uncovered. The failure of traditional taxonomic method to address this issue has resulted to the adoption of a molecular approach-DNA barcoding. It was proposed that DNA barcoding using mitochondrion cytochrome oxidase subunit I (COI) gene has the capability to serve as a barcode for fishes. The aim of this study was to use DNA barcoding in the identification of fish species in Imo River, Rivers State. A total of eight (8) fish samples were collected and used for this study. Quick DNA Miniprep Plus kit (D4068, Zymo Research) was used for the DNA extraction which was followed by PCR amplification and sequencing. BLAST result shows correlation between the sequence queried and the biological sequences with the NCBI database. The names of the samples, percentage ID, predicted organisms and GenBank Accession numbers were clearly identified. A total of 16 sequences (all > 600bp) belonging to 7 species, 7 genera, 7 families and 4 orders were validated and submitted to the NCBI database. Each nucleotide peak was represented by a single colour with various percentage occurrences. Four (50%) out of the 8 original samples analyzed corresponded with the predicted organisms from BLAST result. Pairwise sequence alignment showed different consensus positions and a total of 11 mutations found in *Chrysichthys nigrodigitatus* (n=4), *Oreochromis niloticus* (n=2) and *Clarias gariepinus* (n=5). The whole mutations were substitution (transition and transversion) with no deletion and insertion. However, the transition mutation (n=6) was more in number compared to the transversion (n=5) mutation. There were a total of 834 positions in the final dataset. This work will facilitate more research in other keys areas such as identification of mislabeled fish products, illegal trading of endangered species and effective tracking of fish biodiversity.

**Keywords :** DNA barcoding, Imo river, phylogenetic tree, pairwise DNA alignment

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