# Molecular Characterization of Anguilla from Cibereum and Sapuregel Rivers Segara Anakan Watersheds Cilacap, Central Java

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| **Title** | Molecular Characterization of Anguilla from Cibereum and Sapuregel Rivers Segara Anakan Watersheds Cilacap, Central Java |
| **Author Order** | 5 of 5 |
| **Accreditation** | 2 |
| **Abstract** | The taxonomic status of Anguilla species' in river watershed that empties into Segara Anakan Cilacap is uncertain, thereby making it difficult for further studies to be carried out to determine its genetic in that area. Therefore, this study evaluates Anguilla's taxonomic status and population genetic in Cibeureum and Sapuregel River watersheds. Data were obtained from molecular characterization study using cytochrome c oxidase 1, with fourteen Anguilla specimens collected from two sequenced watersheds. Taxonomic status was determined based on homology and divergence values and monophyly of the samples to the reference species. Meanwhile, genetic divergences among samples to the reference species were calculated based on the Juke-Cantor substitution model in DnaSP6. A homology test was performed using a basic local alignment search tool, with monophyly inferred from the cladogram, which was developed using neighbor-joining and maximum likelihood algorithms in MEGAX with 1000 pseudoreplicates and out-group comparison. Furthermore, population genetic was analyzed through polymorphism, haplotype, nucleotide diversity within the population, divergence, and genetic differences. All calculations conducted in Arlequin 3.5 had Anguilla samples comprising of high (99.23% to 99.84%) to low genetic divergences (0.224% to 1.127%). The result shows that cladogram with all Anguilla samples formed a monophyletic clade with A. bicolor, separated from their taxa. Furthermore, Anguilla samples from both watersheds have low genetic polymorphisms with medium to high haplotype and nucleotide diversity. The population's comparison proved that both populations have low genetic divergence, and no genetic difference based on variance analysis (p=0761). Therefore, Anguilla resources in river watersheds that empty into Segara Anakan are a single genetic conservation unit. |
| **Publisher Name** | Department of Biology, Faculty of Sci and Tech, Universitas Islam Negeri Alauddin Makassar |
| **Publish Date** | 2020-12-30 |
| **Publish Year** | 2020 |
| **Doi** | DOI: 10.24252/bio.v8i2.15532 |
| **Citation** | |
| **Source** | Biogenesis: Jurnal Ilmiah Biologi |
| **Source Issue** | Vol 8, No 2 (2020) |
| **Source Page** | 145-156 |
| **Url** | http://journal.uin-alauddin.ac.id/index.php/biogenesis/article/view/15532/pdf |
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