Mitogenomic Analysis For Coelacanths (*Latimeria Chalumnae*) Caught In Tanzania

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Abstract

In recent years, a large number of individuals of the species *Latimeria chalumnae*, one of the living fossil coelacanths, have been landed off the coast of Tanzania. Although *L. chalumnae* specimens have also been landed at other localities in the western Indian Ocean, so far, viable populations of this species have been identified only at two localities, Comoros and South Africa. Therefore, the recent active catch off Tanzania suggests a new habitat for *L. chalumnae*. To examine the genetic background of the Tanzanian fish, we analyzed complete mtDNA sequences of two Tanzanian individuals (Kigombe-9 and Songo Mnara-1) collected from the north and south coasts of Tanzania. Using the recently reported criteria for six haplotypes established in a population genetic study for coelacanths living in the western Indian Ocean [Schartl, M., Hornung, U., Hissman, K., Schauer, J., Fricke, H., 2005. Relatedness among east African coelacanths. Nature 435, 901.], we characterized Songo Mnara-1 as haplotype 1 and Kigombe-9 as haplotype 5. We suggest that the Songo Mnara specimen is a member of the Comoran group, but was swept away by the South Equatorial current. The individual from Kigombe may be a member of an undiscovered population that exists near the boundary between Tanzania and Kenya. Further analysis using more than 19 individuals recently captured off the north coast of Tanzania will reveal whether a new population exists there. Our sequence data suggest additional variable sites in the mtDNA sequence that may define the population structure of coelacanths in the western Indian Ocean and also raise the possibility that the previously published Comoran coelacanth mtDNA sequence contains several critical errors including base changes and indels.

Keywords

Haplotype;
Living fossil;
Population;
Western Indian Ocean