

Assessment of trace metal pollution in *Octopus cyanea* from the coast of Tanzania

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Octopus cyanea is a crucial fishery resource for human consumption in Tanzania. There is also high demand on an international scale, which creates a rather lucrative octopus trade. However, *O. cyanea* is often overexploited due, on the one hand, to the high demand on a local and global scale and, on the other, to the unsustainable management of the octopus' fisheries. Furthermore, large scale industry and fishing activities often result in bioaccumulation of trace metals (Cd, Hg, Pb, Zn). To assess the bioaccumulation, various liver, kidney and arm samples of *Octopus spp.* were taken at five different sites along the Tanzanian coast (Dar es Salaam, Tanga, Mtwara, Kilwa Masoko and Zanzibar). Sediment samples were also retrieved to estimate environmental contamination. The assessment of the trace metal concentration in *Octopus Cyanea* and sediments is crucial to unveil the potential problems of metal pollution at the Tanzanian coast. Due to the industry and fishing activities in the coastal waters of Tanzania, it is hypothesized that there is a high concentration of detrimental trace metals present in the tissue and sediment samples.

Prior to trace metal analysis, the identification of the tissue samples is required by DNA barcoding. Tissues identified as *Octopus cyanea* and sediment samples were then lyophilized as pre-treatment. Subsequently, the sediment and tissue samples were submitted to trace metal analysis by using a high-resolution inductively coupled plasma mass spectrometer (HR-ICP-MS) Thermo Element 1 (Thermo Scientific). To determine the percentage of particulate organic carbon (POC) present in the sediment samples, a CN Elemental Analyser was used.

Keywords: *Octopus cyanea*; Bioaccumulation; Trace metals; Tanzania