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## *Technical Note*

# *Herklotsichthys quadrimaculatus* Korumburuwa in the stilt fishery in Southern Sri Lanka: Are they really poisonous?

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Stilt fishing is a unique fish catching method confined only to southern coast of Sri Lanka from Galle to Matara. Stilt fishermen sitting on a cross bar called "Petta" tied to vertical pole planted in the reef and carrying out rod and line fishing are a Sri Lankan icon that attracts local and foreign tourists' attention. This small-scale, seasonal fishing method has a long history and fishers use traditional ecological knowledge for their fishing activities (Deepananda et al. 2016). Two fish species, big eye scad (*Selar crumenophthamus*) locally known as Esgedi bolla and bluestripe herring (*Herklotsichthys quadrimaculatus*) locally known as Korumburuwa are caught by this fishing method. Of the two species, Korumburuwa is fished throughout the fishing season which commences from early June with the onset of southwest monsoon and continues until February/March of the following year. Due to freshness of the fish that can be bought at affordable price, most buyers prefer purchasing Korumburuwa at the place they are fished traditionally called as Rendapola. However, there is a traditional belief among some consumers that eating Korumburuwa causes some toxic effect leading to vomiting, dizziness and sometimes fainting among those who consume this species, and also deaths of domestic animals such as cats. These beliefs have detrimental impacts on the marketing of *H. quadrimaculatus* caught in stilt fishing. Such widespread beliefs may have been propagated rapidly among consumers through electronic mass media. For instance, recent media reports on fish poisoning by *Auxis thazard* in Muttur and observation of bioluminescence in *Decapterus ruselli* in Weligama seriously impacted consumption of fish by general public. This communication reports the findings of a short-term study on gut contents of *H. quadrimaculatus*, which was carried out to investigate the root cause of the people's beliefs that Korumburuwa is poisonous.

According to traditional stilt fishers and consumers, Korumburuwa with red eyes may cause toxic effects when consumed; however, those with normal eyes do not cause such effects (Figure 1). Analysis of gut content indicated that

Korumburuwa was omnivorous and that their gut content comprised of 28.7% filamentous-algae, 22.6% zooplankton, 46.9% shrimps and 1.8% molluscs. Interestingly, gut content of red eyed *H. quadrimaculatus* that are believed to be toxic consisted of the prominent zooplankton (microcrustacean), which have ingested toxic dinoflagellates (Figure 2). Such microcrustaceans with dinoflagellates could not be observed in that of fish with normal eyes.

Figure 1. Korumburuwa believed to be toxic (upper) and non-toxic (below) for consumers. The red-eyed fish in the upper plane are believed to be toxic for humans and other domestic animals and can be clearly distinguishable.

Present findings indicate that red eyed nature of the Korumburuwa could have been caused by zooplankton fed on toxic dinoflagellates. Perhaps any toxic effect in consumers may be caused due to consumption of such fish and hence it appears that there is some basis for the traditional beliefs. King (2007) stated that in some tropical inshore regions, "Ciguatera fish poisoning (CFP)" is a major public health problem and that CFP results from the consumption of fishes that have accumulated ciguatoxin and mitotoxin, which are produced by several organisms including benthic dinoflagellates. Therefore, the toxic effects of *H. quadrimaculatus* could also be due to ciguatera toxin. Ciguatera toxin cannot be removed even though fishes are thoroughly cleaned after removing gut in preparing dishes because the toxins could be already absorbed into the blood and flesh of fish. One of the major problems is ciguatera poisoning is that toxic fish cannot be identified. However, the toxic *H. quadrimaculatus* could be identified by their red eye, and it could be recommended that red-eyed Korumburuwa should not be consumed.

Figure 2. Zooplankton (microcrustacean) encountered prominently in the gut contents of red-eyed Korumburuwa showing ingested toxic dinoflagellates (Inset: Microcrustacean full specimen).

## References

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