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## Relationship between reservoir morphometry and chitin yield of giant freshwater prawn (*Macrobrachium rosenbergii*) collected from different reservoirs in Sri Lanka

Sanuja R.G.<sup>1\*</sup>, Deepananda K.H.M.A.<sup>1</sup>, Jayasinghe U.A.D.<sup>2</sup> and Lakshman P.L.N.<sup>3</sup>

<sup>1</sup>Department of Fisheries and Aquaculture, Faculty of Fisheries and Marine Sciences & Technology, University of Ruhuna, Matara, Sri Lanka.

<sup>2</sup>Department of Limnology and Water Technology, Faculty of Fisheries and Marine Sciences & Technology, University of Ruhuna, Matara, Sri Lanka.

<sup>3</sup>Department of Food Science and Technology, Faculty of Agriculture, University of Ruhuna, Matara, Sri Lanka.

Chitin, the second most available carbohydrate in nature next to cellulose is a modified polysaccharide that contains nitrogen. Chitin is a primary compound in exoskeletons of *Macrobrachium rosenbergii*, one of the major freshwater crustaceans in culture-based fisheries and fish processing industry in Sri Lanka. Present study ascertains the variation in chitin yield amongst *M. rosenbergii* cultured in different reservoirs and, the relationship of the chitin yield with the area (hectares) and shoreline length (km) of the reservoir. Reservoir morphometric parameters were collected, and chitin was isolated from *M. rosenbergii* shells (n=300) collected from different perennial reservoirs (n=25) located in Anuradhapura, Puttalam, Hambantota and Monaragala districts of Sri Lanka. Three steps (pre-conditioning, demineralization, and deproteinization) were followed in extracting chitin from the shells. Simple linear regression for the two morphometric parameters of the reservoirs and chitin yield were ascertained as, Chitin (%) = 15.96 + 1.98E-3 \* Reservoir area, and Chitin (%) = 15.8 + 0.08 \* Shoreline length. The area of the studied reservoirs varied from 50 to 1781 ha, while shoreline length of the studied reservoirs varied from 2.77 to 30.34 km. Chitin yield of the male *M. rosenbergii* varied from 11.63 ± 7.54 to 23.16 ± 6.16, and that of the female varied from 10.65 ± 1.76 to 21.88 ± 2.47. Pearson correlation indicated that there was a significant relationship between chitin yield and area of the reservoir (r=0.182, p=0.002), and between chitin yield and shoreline length of the reservoir (r=0.130, p=0.025). Present findings elucidate that the morphometry of the perennial reservoirs affect the chitin yield extracted from *M. rosenbergii* shells.

**Keywords:** Exoskeleton, Culture-based fisheries, Perennial reservoirs, Area, Shoreline

\*Corresponding author: sanujaranasinha@gmail.com