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Bacteriological And Chemical Analysis Of Indian Major Carp Of Hakaluki Haor In North Eastern Bangladesh: An Approach To Food Safety Issues

Abstract

The present study was conducted to assess the comparative bacteriological parameters of Rui (*Labeo rohita*), Mrigal (*Cirrhinus cirrhosus*) and Kalibaus (*Labeo calbasu*) collected from Hakaluki haor of Bangladesh. Sixty three (63) samples for each of the species of Rui, Mrigal and Kalibaus fish was collected from three fishing points of Hakaluki haor in four seasons (monsoon, post-monsoon, winter and pre-monsoon) from May-2017 to January-2019. The methodology was designed to determine Total Viable Count (TVC), Total Coliform Count (TCC), and the prevalence of *Escherichia coli*, *Salmonella* spp. and *Vibrio* spp. Results of the study revealed that, the higher bacterial load was observed in Kalibaus than Rui and Mrigal in all study seasons. In Rui TVC (Log CFU/g \pm SD) was 5.565 ± 0.091 , 5.404 ± 0.1 , 5.126 ± 0.22 and 5.366 ± 0.2 , in Mrigal 5.613 ± 0.069 , 5.571 ± 0.07 , 5.293 ± 0.181 and 5.682 ± 0.077 whereas, in Kalibaus TVC was 5.8 ± 0.14 , 5.714 ± 0.11 , 5.552 ± 0.056 and 5.544 ± 0.067 in monsoon, post-monsoon, winter and pre-monsoon respectively. As indicator organisms total coliform count (TCC) MPN/g of Rui were 50, 49, 23 and 47, in Mrigal 58, 62, 33 and 63, where in Kalibaus TCC were 85, 74, 55 and 86 in monsoon, post-monsoon, winter and pre-monsoon respectively. Pathogenic bacteria such as *Escherichia coli*, *Salmonella* spp. and *Vibrio* spp. was also isolated from all fish in all study seasons. In monsoon percentage of these isolated bacteria was 44%, 16% and 5% in Rui, 50%, 22% and 11% in Mrigal, 72%, 33% and 27% in Kalibaus. In post-monsoon percentage of these isolated bacteria was 39%, 22% and 11% in Rui, 61%, 33% and 0% in Mrigal, 61%, 33% and 33% found in Kalibaus. In winter percentage of these isolated bacteria was 28%, 22% and 0% in Rui, 44%, 33% and 16% in Mrigal, 55%, 22% and 22% found in Kalibaus. In Pre-monsoon percentage of these isolated bacteria was 55.55%, 33.33% and 22.22% in Rui, 77%, 44% and 33% in Mrigal where 78%, 55% and 44% in Kalibaus. Results of this study indicated that the prevalence of pathogenic bacteria was lower in Rui than in Mrigal and Kalibaus in all study seasons. Bacterial load and occurrence of *E. coli*, *Salmonella* spp. and *Vibrio* spp. in all fish samples indicate the contamination which may be connected to environmental conditions of the harvesting area and post-harvest handling of fish.

Biography

Professor Md. Motaher Hossain, the 2nd son (among 3 brothers and 2 sisters) of Late Md. Shamsul Huda Sarker and Late Mrs. Jamila Khatun, was born on 31 December, 1963 at Chandpur, Bangladesh. He obtained his Ph.D degree in Fisheries Science from the Dept. of Fisheries, University of Dhaka in 2008. He received his M.Sc. degree in Fisheries Technology from Bangladesh Agricultural University with First class in 1988. He also obtained B.Sc. Fisheries (Hons) in 1986 from the same University.

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