

Prevalence and antibiotic susceptibility patterns of *Escherichia coli* isolated from wet market aquatic foods in Dhaka, Bangladesh

Shafiq Rheman^{a*}, Md. Samun Sarker^b, Mohammed A. Samad^b, Chadag Vishnumurthy Mohan^c and Jerome Delamare-Deboutteville^c

^aWorldFish, Bangladesh. ^bAntimicrobial Resistance Research Centre (ARRC), Animal Health Research Division (AHRD), Bangladesh Livestock Research Institute (BLRI), ^cWorldFish, Malaysia

*Corresponding author: s.rheman@cgiar.org

Aquaculture industry in Bangladesh is significantly contributing profound positive aspects to the socioeconomic structures of the country. Irrational and inappropriate use of antimicrobials in aquaculture and associated transfer risk of antimicrobial resistant pathogens from aquaculture settings through interlinked human-animal-environment spread pathway may affect enhanced sustainability of the sector, a One Health problem. In this study, prevalence and antimicrobial resistance in one of the key One Health significance pathogens, *Escherichia coli* from farmed aquatic foods were investigated. We sampled 104 fish/shrimps from two large wet markets in Dhaka and successfully isolated and identified *E. coli* from different organs (skin, gills, muscle and intestine) of the collected samples. A panel of 16 antibiotics were tested for sensitivity profiling of *E. coli* following disc diffusion method. Antimicrobial susceptibility testing results were interpreted using Clinical and Laboratory Standards Institute (CLSI) breakpoints. Specific primers were used to detect antibiotic resistance genes. The overall prevalence of *E. coli* in tilapia and shrimp were 55.1% and 37% respectively. The antibiogram study showed that the isolates were 65% resistant to ampicillin followed by cefoxitin and nalidixic acid (40%). On the contrary, isolates were most sensitive to both gentamicin and norfloxacin (95%) followed by meropenem and levofloxacin (85%). Phenotypically resistant *E. coli* isolates carried *bla*_{TEM}, *tetA* and *sul2* genes. Our findings confirms the presence of antimicrobial resistant *E. coli* in fish and shrimp at point of human consumption. PCR results of selected isolates further supports the presence of resistance genes. The high prevalence and presence of drug resistance *E. coli* isolates in aquatic foods at point of human consumption could be a potential threat to public health. Appropriate control measures should be in place to reduce the risk and emergence of antimicrobial resistance in pathogens from aquaculture settings.

Keywords: One Health, Aquaculture, Antimicrobial susceptible testing, Antimicrobial resistance

PREVALENCE AND ANTIBIOTIC SUSCEPTIBILITY PATTERNS OF *Escherichia coli* ISOLATED FROM WET MARKET AQUATIC FOODS IN DHAKA, BANGLADESH

Shafiq Rheman^{1*}, Md. Samun Sarker², Mohammed A. Samad², Chadag Vishnumurthy Mohan³ & Jerome Delamare-Deboutteville³

¹WorldFish, Bangladesh

²Antimicrobial Resistance Research Centre (ARRC), Animal Health Research Division (AHRD), Bangladesh Livestock Research Institute (BLRI)

³WorldFish, Malaysia

*E-mail: s.rheman@cgiar.org

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