Evaluation of Virulence Potentials of Local Bovine *Escherichia coli* O157:H7 Isolates for Causing Outbreaks in Bangladesh

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Abstract: *Escherichia coli* O157:H7 is responsible for many outbreaks worldwide. Until recently, no comparative study between environmental and clinical strains of *E. coli* O157:H7 has been reported in Bangladesh. In this present study, two environmental isolates (CD-11 and CD-17) of bovine origin and a reference clinical strain were investigated for the presence of virulence genes by PCR, VTEC-RPLA, Congo red binding, Sereny's kerato-conjunctivitis, enterotoxic, cytotoxic, and mouse lethal activities. Both CD-11 and CD-17 showed the presence of *eaeA* and *stx*₂ genes and were found to be non-invasive as has been revealed by the Congo red binding and Sereny's kerato-conjunctivitis assays. The isolates also produced enterotoxin, cytotoxin and mouse lethality similar to that found with the reference clinical strain. All these results strongly suggest that the environmental bovine *E. coli* O157:H7 isolates have potentials to cause diseases similar to clinical *E. coli* O157:H7 strains, which might lead to any outbreak in Bangladesh.

Key words: Virulence, bovine *E. coli* O157:H7 isolates, outbreaks, Bangladesh.