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**ISOLATION AND CHARACTERIZATION OF  
TOXIGENIC GENES FROM VIBRIO CHOLERAE  
ISOLATED FROM CLINICAL AND  
ENVIRONMENTAL SAMPLES IN KENYA.**

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## Abstract

*Vibrio cholerae* is a natural inhabitant of the aquatic environment. Strains of *V. cholerae* belonging to serogroup O1 biotype El Tor and serogroup O139 have been described as causative agents of diarrhea. Results of genetic and phenotypic characterizations of such strains indicate that in order to cause diarrhea, they require genes for cholera toxin, the colonization TCP, and the central regulatory protein ToxR. Cholera is a waterborne disease; however, there is no evidence to prove that strains causing human infections have similarity to those found in aquatic environments. This study was aimed to examine isolates from clinical and environmental sources to determine their antibiotic resistance profiles and determine whether virulence regulatory genes were present from isolates in clinical and environmental isolates. Stored isolates characterized, these isolates were obtained from a separate study from fecal samples collected from patients with diarrhea in different hospitals of the Kenyan, coastal region. Environmental specimens (aquatic plants and water sediments) were collected from the waters of the same region. They were isolated and identified by biochemical and serological methods. Identified strains were tested for susceptibility patterns to various antibiotics using E-test method for Minimal Inhibitory concentrations. They were further tested for presence of various genes coding for pathogenic products by multiplex Polymerase chain reactions (PCR). Data was entered in Microsoft excel program and analyzed using SPSS for inferential statistics. There were only 3 out of 24 (12.5%) isolates that were multidrug resistant and all the isolates identified as type O1 and O139 had virulent genes and other genes coding for pathogenic products. Environmental sources can therefore be a reservoir of cholera outbreak in areas where the waters harbors the virulent strains. In such area as coastal regions where these specimen had been taken, preventive measures should be taken to prevent outbreaks as water posses to be a reservoir on strains with virulent genes.