World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Molecular Detection and Characterization of Shiga Toxogenic Escherichia coli Associated with Dairy Product

Authors : Mohamed Al-Hazmi, Abdullah Al-Arfaj, Moussa Ihab

Abstract : Raw, unpasteurized milk can carry dangerous bacteria such as Salmonella, E. coli, and Listeria, which are responsible for causing numerous foodborne illnesses. The objective of this study was molecular characterization of shiga toxogenic E. coli in raw milk collected from different Egyptian governorates by multiplex PCR. During the period of 25th May to 25th October 2012, a total of 320 bulk-tank milk samples were collected from 10 cow farms located in different Egyptian governorates. Bacteriological examination of milk samples revealed the presence of E. coli organisms in 65 samples (20.3%), serotyping of the E. coli isolates revealed, 35 strains (10.94%) O111, 15 strains (4.69%) O157: H7, 10 strains (3.13%) O128 and 5 strains (1.56%) O119. Multiplex PCR for detection of shiga toxin type 2 and intimin genes revealed positive amplification of 255 bp fragment of shiga toxin type 2 gene and 384 bp fragment of intimin gene from all E. coli serovar O157: H7, while from serovar O111 were 25 (71.43%), 20 (57.14%) and from serovar O128 were 6 (60%), 8 (80%), respectively. The results of multiplex PCR assay are useful for identification of STEC possessing the eaeA and stx2 genes.

Keywords : raw milk, E. coli, multiplex PCR, Shiga toxin type 2, intimin gene
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020