DETECTION OF SALMONELLA SPP. AND LT AND EAE GENES OF E. COLI IN ORGANIC VEGETABLES

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Organic vegetables could be contaminated with Salmonella and some sorotypes of E. coli that are important causes of foodborne illness. The aim of this study was to develop a multiplex polymerase chain reaction (mPCR) to detect simultaneously Salmonella spp. and the eae and LT genes of E. coli in organic vegetables. The reactive mixture contained 4mL of DNA template, 4mM of MgCl₂, 0,6mM of dNTPs, 0,5mM of StyinvaJHO2-R and StyinvaJHO2-F (specific to Salmonella spp.), 0,3 mM of LT-R and LT-F (specific to LT gene of E. coli), 0,3 mM of eaeA-R and eaeA-F (specific to eae gene of E. coli), and 1U of Taq DNA polymerase. Amplification conditions were initial denaturation at 95°C for 5min., followed by 35 cycles of denaturation at 95°C for 60s, annealing at 60°C for 60s, exention at 72°C for 60s and final exetion at 72°C for 10min. The amplification products were visualized on agarose gel 1,5% and 0,02 mL/mL of SYBR® Safe. An hundred samples of organic vegetables were analyzed by the developed mPCR and in parallel by the conventional method. All samples were negative for Salmonella spp. by both methods. Thirty four samples were positive for E. coli by the conventional method. E. coli with LT gene was detected in one sample and another one was contaminated with E. coli that contained eae gene. The mPCR can be used as a screening tool in organic vegetables for rapid detection of Salmonella, enterotoxigenic E. coli (ETEC) and E. coli that contain eae gene.