

Effects of Allium Sativum Essential Oil on MIC, MBC and Growth Curve of Vibrio Parahaemolyticus ATCC 43996 and Its Thermostable Direct Hemolysin Production

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Abstract : Vibrio parahaemolyticus is a halophilic bacterium and often causes gastroenteritis because of consumption of raw or inadequately cooked seafood. Studies showed a strong association of thermostable direct hemolysin (TDH) produced by members of this species with its pathogenicity. The effects of garlic (Allium sativum) essential oil at concentrations of 0, 0.005, 0.015, 0.03 and 0.045% on the minimum inhibitory concentration (MIC), minimum bactericidal concentration (MBC), growth curve and production of TDH toxin of vibrio parahaemolyticus were studied in BHI model. MIC and MBC of Allium sativum essential oil was estimated 0.03%. The results of this study revealed that the TDH production was significantly affected by Allium sativum EO and titers of TDH production in 0 and 0.005 % were 1/256 whereas this titer in 0.015 % concentration of EO. Concentrations of 0.005 and 0/015 % of garlic essential oil reduced the bacterial growth rate significantly ($P < 0.05$) compared to the control group. According to the results Allium sativum essential oil showed to be effective against bacterial growth and production of TDH toxin. Its potential application in food systems may be suggested.

Keywords : allium sativum essential oil, vibrio parahaemolyticus, TDH, consumption

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