

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

Authors : Afshin Akhondzadeh Basti, Zohreh Mashak, Ali Khanjari, Mohammad Adel Rezaei, Fatemeh Mohammadkhan

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

Conference Title : ICFSN 2015 : International Conference on Food Security and Nutrition

Conference Location : Istanbul, Türkiye

Conference Dates : June 18-19, 2015