

Study of the effect of the essential oil of anise (*Pimpinella anisum*) on *Streptococcus iniae* and *Lactococcus garvieae* isolates identified by PCR

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Abstract

The essential oils are a combination of volatile oils that are made into plants as a secondary metabolite. Anise essential oil is known for its antimicrobial activity to several bacteria pathogenic. Bacterial pathogens are one of the important factors in the aquaculture industry. The aim of this study was to identify the bacterial pathogens in Rainbow trout (*Oncorhynchus mykiss*) fish and also to investigate antibacterial activity of anise essential oil on these bacteria. In this study, two pathogenic bacteria in fish including *Streptococcus iniae* and *Lactococcus garvieae* were isolated from head kidney then purified from fish and identified by PCR; then, the antibacterial activity of anise essential oil against these pathogens was evaluated by macrodilution broth method. According to the findings PCR results indicate high prevalence of *Streptococcus iniae* and *Lactococcus garvieae* in rainbow trout culturing ponds. The effect of essential oil anise on bacteria showed a minimum growth inhibitory concentration for *Streptococcus iniae* about 0.19 µl/ml and this amount was 0.312 µl/ml for *Lactococcus garvieae*. The diameter of the growth inhibition zone under the influence of essential oil of anise on these gram positive bacteria was compared with the diameter of the growth inhibition zone under the influence of common antibiotics the results showed a significant difference in anise essential oil compared with antibiotics. The result also showed significant potential of anise to inhibiting growth of these bacteria. so, identification by molecular methods can be an effective role in the success of aquaculture.

Key words: Bacteria, Fish, PCR, Essential oil of Anise, Antibiotic

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