The role of macroalgae (*Cladophora glomerata*) in the formation of biofouling in marine equipment

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Abstract

Biofouling (bio adhesion) refers to the accumulation and adherence of living organisms in aquatic ecosystems, which are placed on artificial or natural surfaces. Biofouling effect directly and indirectly on the aquaculture industry. Identification of biofouling organisms is the first step of effective and comprehensive control of biofouling in marine aquaculture. Macro-algae have different characteristics and have ability to take control of aquatic ecosystem and change the food web. *Cladophora* is one of the macro algae in biofouling structure in world wide. Therefore, the aim of this study is to introduce *Cladophora glomerata* as one of the dominant macro algae of the Caspian Sea. Field observations in the Caspian Sea showed that *Cladophora* is rapidly forming massive filaments around each object (such as oak crust). In the summer of 2018, the biomass of Cladophora recorded 320 gr/m^3 on somewhere of the Caspian Sea. However, its density was not uniform and decreased at unsuitable surface adhesion. The presence of nutrients in the aquaculture equipment sites is one of the important factors of intense reproduction of Cladophora. With considering the *Cladophora* potential for the intense proliferation (Biofouling forming) and disturbance in the aquaculture equipment sites, comprehensive studies on ecobiological characteristics and its control methods are necessary in the Caspian Sea.

Key words: Aquaculture, Biofouling, Macroalgae, *Cladophora*, Caspian Sea, Iran