

Abstract:

Harmful algal blooms resulting in red discoloration of coastal waters in the Persian Gulf, Iran were first observed in January 2007. The species responsible for the bloom, which was identified as *Cochlodinium polykrikoides*, coincided with massive aquatic organisms' mortalities in the Persian Gulf. In order to provide optimum growth and bloom forming, *C. polykrikoides* cells were sampled during the bloom conditions in the coastal waters of Persian Gulf. After adaptation in filtered seawater, they isolated by positive phototropism characteristic of this species to light. They were grown in modified media culture at different salinity (30, 32 and 35ppt), temperature (20, 23, 26 and 28°C) and intensity (35, 70 and 90 $\mu\text{mol m}^{-2} \text{s}^{-1}$) with an initial cell density of 50 cell mL^{-1} . The results of the present study clearly showed that the highest alga biomass was obtained following culture by using A2 medium under the 32ppt salinity, 26°C temperature, and under a 11h light:13h dark photoperiod regime at a light intensity of 90 $\mu\text{mol m}^{-2} \text{s}^{-1}$ provided by cool white fluorescent tubes. Mean cell density of *C. polykrikoides* in a 60 liter tank for ten days reached to 32×10^6 cell L^{-1} . Moreover, individual *C. polykrikoides* chain with 18 cells was observed for the first time in cultures. Based on the results from the present study, as mentioned above, providing suitable media culture and physical condition (light intensity and temperature), bloom forming of *C. polykrikoides* start from day 8 to 10 and will be continued until day 24 to 28. In the other hand, *C. polykrikoides* cells immediately crashed and destroyed.

Key words: Harmful algal bloom, *Cochlodinium polykrikoides*, isolation, optimum growth, Environmental parameters, Persian Gulf