

Sensitivity of Sea Bass, *Dicentrarchus labrax* early developmental stages on water soluble fraction of Crude Iraq Oil

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It is well known that early developmental stages of different fish, like herring, plaice, cod, etc., are very sensitive to different types of oil, oil derivatives and oil hydrocarbons. These life stages, especially eggs and larvae represent the most susceptible part of the whole life cycle (Kuhnhold, 1977). However, there is no published data on sensitivity of Mediterranean fish species to crude oils normally transported in this area. So, early developmental stages, fertilized eggs, yolk-sac larvae and postlarvae of one typical Mediterranean fish species, *Dicentrarchus labrax* Linnaeus, 1758, were in our experiments exposed to crude Iraq oil, which is common in tanker traffic in the Adriatic sea.

Eggs, larvae and postlarvae of sea bass used in the experiments were provided by artificial spawning and rearing (Katavić, 1986). Water soluble fraction of crude Iraq oil was prepared by methods of Anderson et al., (1974). Experiments were done in triplicate under static conditions, in water bath with ambient sea water (11.2 ° C). Medium was gently mixed by aeration from the jar bottom.

The analysis showed water soluble fraction (WSF) of crude Iraq to be very rich in light hydrocarbons, toluene, xylene, benzene and naphthalenes.

Eggs exposed to WSF in gastrula stage showed high resistance during first 72 hours. Thereafter, all developed embryos died in all concentrations, and only in lowest (10 %) WSF concentration 4.1 % embryos hatched, compared to 75 % in the controls. Most of dead embryos were in different stages of embryogenesis (95 %), and only small number in late gastrula stage. Heart-beat rate in embryos was drastically reduced and only in lowest WSF concentration we observed arithmic heartbeats. All hatched larvae in 10% WSF had spinal deformities and lay immotile on jar bottom. Hatched larvae in control groups had only 0.3 % spinal deformities, regular heartbeat (60 beats per minute) and were very motile.

Short term exposure (24 h) of two day old larvae showed slight increase of mortality toward higher WSF concentrations, but only the highest concentration (50 %) had significantly higher mortality if compared to the controls. Examination of WSF influence on yolk sac resorption showed slowing down of the resorption rate in two higher (30 and 50 %) WSF concentrations which is associated with slower motility of larvae in jars. This has been attributed earlier to narcotic effect of oil hydrocarbons (Kuhnhold, 1977).

Postlarvae (20 days old) seemed to be most resistant among studied sea bass stages. Lowest WSF (10%) concentration showed similar mortality during all 96 h exposure as that in the controls. Other concentrations had significantly lower survival after 24 h exposure, but if compared with gilthead sea bream, *Sparus aurata* postlarvae (Glamuzina et al., 1990), they are more resistant to the exposure to water soluble fraction of crude Iraq oil.

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