

ROPME MUSSEL WATCH PROGRAMME
2014
REGIONAL DISTRIBUTION OF BIOTOXINS IN
ROCK AND PEARL OYSTERS

CONCLUSION

In the ROPME Sea Area (RSA), attention has been given over the last 2 decades to harmful algal blooms, providing information on phytoplankton species composition, abundance and biomass, in relation to environmental condition such as eutrophication, pollution, climate change etc. (Dorgham, 2013). The number of reports on harmful algal bloom has been increasing, and their impact on drinking water and seafood safety and security and the environment have become more widespread and persistent. Fish and marine mammals mortalities, aquaculture loss, traditional fishery restriction, and closure of desalination plants, have been attributed to a variety of microalgae, harmful through toxin production or by their biomass. This new regional approach attempts, for the first time, to provide toxicity data through an opportunistic collection of shellfish in 26 sites along the coastline of 6 countries of the RSA.

Two relevant neurotoxins were monitored in Rock and Pearl Oysters, the brevetoxins and the saxitoxins, both produced by phytoplankton species reported in the RSA, and responsible of human neurotoxic shellfish poisoning (NSP) and paralytic shellfish poisoning (PSP), respectively.

The levels of brevetoxins were below the detection limit of the RBA in all samples tested, while the levels of saxitoxins were below the detection limit in all but four (4) sites: Bushehr (IRAN 2), IRAQ, Fanateer (KSA 2.1) and Ras Abu Ali (KSA 2.2). The estimated values, ranging from 7.63 to 13.3 µg STX eq./100g, were below to the 80 µg STX eq./100g regulatory limit applied in most countries (eg. EU or USA) or to the 40 µg STX eq./100g value applied in the Philippines. Yet those values remain of concern considering the fact that no concurrent blooms were reported during the sampling period. As well, the absence of brevetoxin does not preclude the possibility of contamination with these toxins during toxic blooms.

RECOMMENDATION

The results of the present survey revealed low saxitoxin like activity in selected Oysters collected in the framework of the ROPME Mussel Watch 2014 campaign. It is recommended to complement these receptor binding assay results by analyzing the samples using high performance liquid chromatography with fluorescent (HPLC-FI), an analytical method that would provide PSP toxins profile. Future work could also include systematic shellfish sampling concomitant to relevant harmful algal blooms, as well as toxic phytoplankton cyst bed mapping.