Band Schmidt, C.J., J.J. Bustillos-Guzmán, D.J. López-Cortés, **I. Gárate Lizárraga**, E.J. Núñez-Vázquez & F.E. Hernández-Sandoval (2010). Ecological and physiological studies of *Gymnodinium catenatum* in the Mexican Pacific: A review. Marine Drugs, 8(6): 1935-1961. DOI: 10.3390/md8061935

Ecological and physiological studies of *Gymnodinium catenatum* in the Mexican Pacific: A review

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This review presents a detailed analysis of the state of knowledge of studies done in Mexico related to the dinoflagellate *Gymnodinium catenatum*, a paralytic toxin producer. This species was first reported in the Gulf of California in 1939; since then most studies in Mexico have focused on local blooms and seasonal variations. *G. catenatum* is most abundant during March and April, usually associated with water temperatures between 18 and 25 ºC and an increase in nutrients. *In vitro* studies of *G. catenatum* strains from different bays along the Pacific coast of Mexico show that this species can grow in wide ranges of salinities, temperatures, and N:P ratios. Latitudinal differences are observed in the toxicity and toxin profile, but the presence of dcSTX, dcGTX2-3, C1, and C2 are usual components. A common characteristic of the toxin profile found in shellfish, when *G. catenatum* is present in the coastal environment, is the detection of dcGTX2-3, dcSTX, C1, and C2. Few bioassay studies have reported effects in mollusks and lethal effects in mice, and shrimp; however no adverse effects have been observed in the copepod *Acartia clausi*. Interestingly, genetic sequencing of D1-D2 LSU rDNA revealed that it differs only in one base pair, compared with strains from other regions.

Palabras clave: Gametogenesis, Harmful algae blooms, Bahía de Acapulco, Mexican Pacific, ecology, paralytic toxins, physiological effects