

Effects of the herbicide atrazine on aneuploidy in Pacific oysters, *Crassostrea gigas*

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Hypodiploid aneuploid cells have regularly been reported in the Pacific oyster, *Crassostrea gigas*. A negative correlation between this phenomenon and growth as well as evidence for a genetic basis has been shown. Furthermore, non-random chromosome loss was also demonstrated in G-banded aneuploid karyotypes of *C. gigas*. Chromosome pairs 1, 5, 9, and 10 were characterized by the loss of one chromosome. The present study investigated the effects of the herbicide atrazine on the level of aneuploidy in this species. Firstly, *C. gigas* adults and juveniles were subjected to different atrazine doses (10 mg/l representing a peak value found in a polluted environment and 100 mg/l). A positive relationship between atrazine concentration and aneuploidy was observed. Moreover, the aneuploidy level of a sample of juveniles, previously exposed to atrazine, which were subsequently transferred to non-polluted conditions, remained significantly different between treatments. Furthermore, a progeny of oysters exhibited significantly higher aneuploidy levels when their parents had previously been exposed to atrazine. Thus, the aneuploidy phenomenon persists in time both within and between generations. Additionally, restriction endonuclease banding was used on the progeny to identify which chromosomes were missing. The identity of chromosomes lost is not influenced by atrazine as the same chromosome pairs were affected by the loss of one chromosome. Further investigation is required to enable a better understanding of aneuploidy in oysters, especially as to why cells tolerate the loss of these chromosomes, and why some chromosomes are more easily lost than others.