Evaluation of cytochalasin B and 6-dimethylaminopurine for tetraploidy induction in the Eastern oyster, *Crassostrea virginica*

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Evaluation of cytochalasin B and 6-dimethylaminopurine for tetraploidy induction in the Eastern oyster, *Crassostrea virginica*

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Abstract

Cytochalasin B (CB) has been used to induce tetraploidy in oysters since the practice began in 1993. However, CB is toxic and presents health risks to hatchery workers who administer the treatment. 6-dimethylaminopurine (6-DMAP) is also an effective cytokinetic inhibitor, and does not carry the health risks of CB. We examined the relative effectiveness of 6-DMAP vs CB for producing tetraploids in the Eastern oyster (*Crassostrea virginica)*. Survival and yield of tetraploids varied widely among the 15 experiments. Larvae resulting from 6-DMAP treatment had higher survival in 11 of the 14 trials on day two and day six/ seven. For yield of tetraploids, 10 of 13 6-DMAP treatments had higher proportions of tetraploids on day two and at the second sampling – day six, seven, or nine – 7 of 10 had higher proportions of tetraploids. Tetraploid spat were obtained from the majority of surviving cultures. Based on these results, 6-DMAP can effectively replace CB for inducing polyploidy in *C. virginica,* and probably other *Crassostrea spp.,* due to the success of the treatment, the ease of application, and the reduction in health risk to hatchery workers. This study set the precedent for the use of 6-DMAP on *C. virginica* and

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