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Brittany L. Peachey, Standish K. Allen Jr.

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

Brittany L. Peachey^a, Standish K. Allen Jr.^{b,*}

^aDepartment of Wildlife and Fisheries Sciences, Texas A&M University, 454 Throckmorton Street, College Station, TX 77843, USA

^bVirginia Institute of Marine Science, Aquaculture Genetics and Breeding Technology Center, College of William and Mary, 1208 Greate Road, Gloucester Point, VA 23062, USA

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

*corresponding author

Email addresses: peacheybl1@gmail.com (B.Peachey), ska@vims.edu (S.K.Allen)

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