326 Preliminary Evaluation of Zosteric Acid for Preventing the Attachment of Quagga Mussels

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Mussels, such as Quagga and Zebra, attach to many aquatic man made structures and have been creating an economic burden in North America for almost two decades. Prevention or reduction of the attachment of these Mussels with environmentally friendly approaches is needed. In this study, we evaluate the effectiveness of Zosteric acid, a natural product antifoulant found in eelgrass Zostera Marina and has shown the ability to prevent the attachment of some bacteria and barnacles, on inhibiting the attachment of Quagga Mussels. Animals were exposed to water containing 0, 0.5, 1 or 2 g/L zosteric acid and their attachment to the container was tracked with time. The results show that Zosteric acid was not effective at detaching animals that had pre-attached to the vial, but it exhibited some effectiveness in preventing Quagga Mussels attachment for a short period of time. At low concentrations (≤ 0.2 g/L), zosteric acid was only effective for the first day. As the zosteric acid dose increased (0.5 g/L, 1 g/L and 2 g/L), prevention of attachment was found to last longer, and with a 2 g/L of Zosteric acid, no attachment of Mussels was observed within the first three days and only 20% of the Mussels were found to attach in day 4. Conversely, animals in either control (no zosteric acid) or tris solutions (another control) had reattached within one day.

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