

ABSTRACT

JUVENILIZING EFFECTS OF METHYL FARNESOATE ON REPRODUCTION AND DEVELOPMENT IN THE RICELAND TADPOLE SHRIMP, *TRIOPS LONGICAUDATUS*

Methyl farnesoate (MF), shown to inhibit adult metamorphosis in several crustaceans, was shown to be a native, juvenilizing factor, that delays adult metamorphosis in the tadpole shrimp, *Triops longicaudatus*. Juvenile hormone III, possessing a similar structure to that of MF, has been established as a hormone that regulates metamorphosis in insects. Methyl farnesoate may have an analogous role in crustaceans. The effect of MF on oocyte production, performed exclusively by adults, and MF metabolism were assayed. Treatment with MF reduced oocyte production in individuals treated during the larval/juvenile stages, suggesting retention of the juvenile morphotype and inhibition of gonad development. When administered to adults, no reduction in oocyte production was observed. MF-synthesis by the enzyme farnesoic acid O-methyl transferase was found in the several tissues. We conclude that MF is synthesized by the tadpole shrimp and regulates adult metamorphosis; thus it is a native, juvenilizing agent in *T. longicaudatus*.

William Nelson
August 2005