Apr 6th, 6:30 PM - 8:00 PM

Shell Mineralogy as a Potential Indicator of Developmental Stages in Several Marine Gastropod Species

Todd L. Mathus
Illinois Wesleyan University

Gail Lima, Faculty Advisor
Illinois Wesleyan University

Follow this and additional works at: http://digitalcommons.iwu.edu/jwprc
SHELL MINERALOGY AS A POTENTIAL INDICATOR OF DEVELOPMENTAL STAGES IN SEVERAL MARINE GASTROPOD SPECIES

Todd L. Mathus, Dept. of Biology, IWU, Gail Lima*

Gastropod shell mineralogy of preserved specimens of planktotrophic species, Crepidula plana and Crepidula fornicata, and a nonplanktotrophic species, Busycon canaliculatum, were analyzed by differential staining with Feigl's stain. Feigl's stain provides evidence for distinct differences between aragonite and calcite, two polymorphs of CaCO₃, that comprise the framework for shell deposition. Previous studies have shown that larval bivalve shells are primarily composed of argonite, whereas juvenile and adult shells are calcitic. Therefore, a change from aragonite to calcite would indicate metamorphosis from the veliger to the juvenile. Preliminary results indicate similar shell mineralogy patterns in gastropods, thus supporting the previous bivalve studies. Additionally, the results show that the amount of time necessary for Feigl's staining varies according to the shell composition; more specifically, completely aragonitic shells stain at a much faster rate than do shells with a combination of calcite and aragonite. I anticipate subsequent work using scanning electron microscopy and X-ray diffraction analysis will verify these preliminary results.