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EDWARDS, DALE D. and RONALD V. DIMOCK, JR. Wake Forest University-- Host specific genetic variation among populations of the symbionc water mite *Unionicola formosa*.

The water mite *Unionicola formosa* occurs throughout North America in symbiotic association with several species of freshwater mussels in the genus *Anodonta*. While populations of this mite from *A. cataracta* and *A. imbecilis* are morphologically indistinguishable, substantial differences exist in the behavioral specificity of this mite depending upon the species of mussel with which it is associated. Since mating most likely occurs only within the confines of a host's mantle cavity, we hypothesized that host specificity could serve as an intrinsic barrier to gene flow between populations of this mite from different mussels. To test this hypothesis an electrophoretic analysis of mites from populations of *A. cataracta* and *A. imbecilis* was undertaken. An examination of 14 enzyme loci revealed differences in the degree of genetic variation between mites from these two host species. Furthermore, fixed allelic differences were observed at three of the 14 enzyme loci surveyed. These data strongly suggest that *U. formosa* from *A. cataracta* and *A. imbecilis* are reproductively isolated and probably represent distinct races of *U. formosa*. Future studies will examine whether these mite populations are reproductively isolated for reasons other than host preference and represent morphologically indistinguishable sibling species of *Unionicola*.

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TANKERSLEY, RICHARD A. and RONALD V. DIMOCK, JR. Wake Forest University--*A priori* identification of brooding unionid mussels using stepwise discriminant analysis.

Female *Anodonta cataracta*, like other freshwater unionid mussels, incubate their larvae (glochidia) in the water tubes of their outer gills which serve as marsupia. Since many dioecious mussels lack definitive sexual dimorphic shell features, identification of brooding individuals has traditionally involved direct inspection of the gills either by dissection or forcibly gaping the valves risking, damage to the shells and internal tissues. A stepwise discriminant analysis was used to establish a classification function for differentiating brooding *A. cataracta* from non-brooding individuals based on a set of external morphological characteristics, thereby minimizing disturbance and the risk of mortality. Following collection, the wet weights and shell volumes of mussels were recorded and shell length, width, height, area, perimeter and shape were measured using a computerized video image analysis system. Mussels subsequently were sexed and the outer demibranchs examined for the presence of developing larvae. Although the largest uni-variate F-values were calculated for width, volume and wet weight, only volume and weight were entered into the analysis. The distance between the brooding and non-brooding group centroids was significantly different ($P<.01$), and a confusion matrix revealed that nearly 80% of the mussels could be classified correctly *a priori* using just the two predictor variables compared to an expected chance accuracy of less than 52%. Moreover, the discriminant function did not appear to be based upon sexual dimorphic features of *A. cataracta* shells since a similar analysis was less effective at differentiating between males and females during non-brooding periods.

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BISBEE, JOHN W. Lenoir-Rhyne College--Life cycle of the freshwater sponge Spongilla lacustris in a South Carolina pond.

Populations of freshwater sponges in Adams Pond (in Richland County, near Columbia, SC.) were sampled 19 times from May 1985 through Dec. 1987. Field observations and samples collected for microscopic analysis were used to describe the life cycle of Spongilla lacustris. Functional sponge tissue was found throughout the year, although it was more extensive during the winter and spring, as were the components of the vascular system. Numerous spermatic cysts and some embryos were present in April; spermatic cysts, eggs, and embryos were abundant during May. One of the sponges sampled was a hermaphrodite. The presence of gemmules with yolk platelets during May and June suggests that this is a time of gemmulation. Gemmule hatching may occur in the fall. Summer gemmulation and hermaphrodism are unusual for freshwater sponges. In contrast to S. lacustris, two other sponge species in Adams Pond produced extensive gemmules and consisted of only minimal tissue in the winter.

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ZIMMERMAN, RONALD C. and CLINT E. CARTER. Vanderbilt University--Leucine aminopeptidase activity of the 140 kilodalton glycoprotein of Schistosoma japonicum soluble egg antigens.

A 140 kilodalton (kD) glycoprotein found in Schistosoma japonicum soluble egg antigens (SEA) is the only component recognized by antibodies in serum from mice that have been infected for 7 weeks (Carter & Colley (1981) Mol. Immunol. 8:219). This 140 kD molecule can immunize mice for the formation of inflammatory granulomas around schistosome eggs lodged in host tissues (Sidner et al. (1987) Am. J. Trop. Med. Hyg. 36:361). During in vitro culture, S. japonicum eggs synthesize large quantities of the 140 kD molecule and release it into the surrounding medium. This material has leucine aminopeptidase activity and may be involved in egg nutrition or host penetration.

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BOGITSH, B. J.,[1] VAN DAM, G. J.,[2] and DEELDER, A. M.[2] Vanderbilt University[1] and University of Leiden[2]--Ultrastructural localization of gut-associated antigens in Schistosoma mansoni using a FITC-anti-FITC system.

A monoclonal antibody to schistosome circulating cathodic antigen labeled with FITC is detected in the gut of Schistosoma mansoni by an anti-FITC monoclonal antibody labeled with 10 nm gold particles. Also, human IgM antibodies pooled from patients infected with Schistosoma mansoni were detected using an anti-human IgM-FITC conjugate followed by the anti-FITC/Au. In both techniques, the anti-FITC-based detection system shows a high specificity and sensitivity. These observations in combination with ease of production and with availability of FITC-protein conjugates suggest a wide applicability for the FITC-anti-FITC system to immunochemical and immunocytochemical procedures. Moreover, the same preparation