

C-1 Evaluation of integumental pore signatures of species of calanoid copepods(Crustacea) for interpreting inter-specific relationships

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As in all arthropods, the integument of calanoid copepods and other crustaceans has integumental organs, consisting of sensilla and opening of underlying glands. Digestion of the integuments of crustaceans by potassium hydroxide removes all soft tissues. Subsequent staining of the integument reveals patterns of pores or holes in the integument that are the sites of integumental sensilla and gland opening. The spatial arrangement of these pores in adults is peculiar to the species and is therefore called a pore signature. The pore signature of calanoid copepods is of increasing interest in phylogenetic and biogeographic studies. Some recent studies have been restricted to the urosome on the assumption that most of the species-specific information resides there. The present study tests that assumption in eight *Pleuromamma* species by assessing the signatures of the cephalosome, metasome and urosome separately in each species. Most of the species-specific information is in the urosome, but a significant proportion also resides in the cephalosome and a lesser component in the metasome. Changes in the pore signatures between the species parallel changes in other morphological characters. The pore signatures shed further light on the phylogeny of the *Pleuromamma* species which had been diffuse in studies of conventional morphology of this genus. Interspecific differences in the pore signatures occur as early as copepodid III. Sexual differences in their pore signature are found in copepodid IV and are primarily evident in the urosome of the adult. The species-specific components of the urosomal signature are greater in the female than in the male. In general, the degree of the intraspecific variation in the pores signatures increases with increasing number of the total integumental pores and is limited to 10% or less of the total. Inter- and intraspecific variation are an expression of the phylogenetic grouping of species, or genetic similarities between the species within the genus.