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zool@tubitak.gov.tr

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Ultrastructural Observations on the Development of Some Actinosporean Types Within Their Oligochaete Hosts

Ahmet ÖZER
Ondokuz Mayıs University, Fisheries Faculty, 57000 Sinop - TURKEY
Rodney WOOTTEN
University of Stirling, Institute of Aquaculture, FK9 4LA, Stirling, Scotland - UK

Abstract: Synactinomyxon type 1, aurantiactinomyxon type 3, echinactinomyxon type 5 and raabeia type 4 were studied at the TEM level in order to determine the developmental stages within their oligochaete hosts. All the actinosporean types studied had uninucleate cells as the earliest stage of development. The formation of a subsequent binucleate cell stage was either due to the division of the nucleus in a uninucleate cell or the plasmogamy of two uninucleate cells. The earliest pansporocyst formation seen was two outer somatic cells surrounding two inner generative α and β cells in all the actinosporean types studied. However, the formation of an early pansporocyst followed a four-nuclei stage only in raabeia. Subsequently, the number of somatic and generative cells increased as a result of mitotic divisions and reached 8 α and 8 β cells at the end of the division stages. Echinactinomyxon had only four somatic cells in the pansporocyst, whilst synactinomyxon, aurantiactinomyxon and raabeia had eight. Following the copulation of each pair of α and β cells, eight zygotes were formed. Then, two mitotic divisions of each zygote resulted in a four-cell stage of each sporoblast. Valvogenesis and capsulogenesis was followed by the formation of eight mature spores inside each pansporocyst.

Key Words: Ultrastructure, Actinosporea, Aurantiactinomyxon, Synactinomyxon, Raabeia, Echinactinomyxon, Myxozoa

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