D. 미세구조 및 형태

D101

Morphological and Ecological Aspects of the Silk Apparatus in the Spider, *Paracoelotes spinitarsis* (Araneae: Amaurobiidae)

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The silk of spider is used to form various structures such as draglines, retreats, webs, snares, and cocoons. Since the interactions between spider and environment are silk-mediated, the silk apparatus and its silk glands deserve treatment from morphological and ecological point of view. The silk apparatus of this spider, *Paracoelotes spinitarsis* is composed of internal silk glands and external spinnerets. Among the three pairs of spinnerets, the posterior pairs are highly elongated along the body axis. In order to understand the properties and the evolutionary origins of these silk constructs, we analysed here the morphological characteristics of the silk spinning apparatus and its ecological significance in this spider. Through the fine structural analysis using light and electron microscopes, the silk glands of the adult female spider were composed of four types of silk glands (ampullates, tubuliforms, aciniforms and pyriforms) which connected with typical spinning tubes of each spinneret. It has been also revealed that the tubuliform glands were only observed in female spiders, however the flagelliform and aggregate glands which had the function of adhesive thread production in orb-web spiders were not observed at both sexes of this spiders.

D102

Fine Structural Analysis of the Silk Apparatus in the Comb-footed Spider, *Achaearanea tepodariorum* (Araneae: Theridiidae)

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It has been known that functional specialization of silk producing apparatus involving precise modifications of the shape of the spinnerets, the number and morphology of spinning tubes, and anatomical characteristics of the silk glands. Although the spinning apparatus often undergoes adaptative variations, some basic familial characteristics usually remain unchanged, so their shape and number of spinning apparatus can also classify spiders. Here we describe the fine structural organization of the silk glands and its spinning apparatus in the comb-footed spider,*Achaearanea tepodariorum*, with light and electron microscopes. The silk glands of the adult female spider were located in seven groups on the spinnerets including each pair of major and minor ampullates, tubuliforms, flagelliforms, aggregates, pyriforms and aciniforms. Each group of silk gland feed silk into one of the three spinneret pairs. Commonly the secretory silk is synthesized from rough endoplasmic reticulum (rER) of glandular epithelial cells and is transported from the rER into the secretory vesicles which are grown up by fusion with the surrounding small vesicles including the secretory silk.

D103

Fine Structural Analysis of the Testicular Cyst Cells in the Black Widow Spider, *Latrodectus mactans*

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Fine structure of the testicular cyst cells in the black widow spider, *Latrodectus mactans*, was analysed with light and electron microscopes. The testes of this spider bounded by a peritoneal sheath were paired tubular organ located ventral opisthosoma. The testis consisted of a large number of cysts, and the testicular cysts contained germ cells at the same developmental stage. Spermatogenesis of this spider took place in this structure, and the number of spermatozoa per cyst was 24(16). The cysts containing spermatogonia or early spermatocytes were located at the periphery of the testis but the cysts of spermatids or spermatozoa were observed at the vicinity of the lumen. As a result of flagellar coiling, each spermatid was converted into a roundish sperm called "sperm ball" bearing regular 9+2 arrangement of microtubules in flagellar axoneme.

D104

Analysis of Skin Wound Healing Response Using Histo-Immunochemical and Electron Microscopical Chase

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According to the biological systematic category, the ability of the healing is very different. Generally healing ability of the lower animal group has been known more excellent compared to its higher group. Therefore, lower animals have been used for the experimental model to explore the mechanism of the wound healing. For verification of histochemical charateristics, we have used skin of the frog as common amphibian. At day 1, 10, and 16, mucous substance was very actively synthesized and strong positive by PAS and Alcian blue (pH 2.5). Day 10 after wounding, margin of the wound was positive by PTAH staining. At 3 to 6 hour and day 23 to 27, we have found the cell division was active through the MG-P staining. To identify the transitional pathway of keratinocytes, we have employed cytokeratin antibody for immunohistochemical analysis. At 3-hour basal layer cells were strong positive. Day1 and 2 after post-wounding, regenerating epithelial cell layer was positive reaction, especially basal layer cells were strong positive. At day 10 after wound, the degree of positive reaction to basal cells of regenerating epithelial tissue was equal to day 7 wound tissue. At day of 19th, basal and spinous layer cells were strong positive reaction.