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Gastrin/CCK-like Immunoreactive Cells in the Digestive Organ of the Wax Moth, *Galleria mellonella*.

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The digestive organ of insects consists of foregut, midgut and hindgut. Foregut has diverse function, such as food filtration, storage, and partial digestion, whereas midgut is known as principal digestive tract for food digestion and absorption. Hindgut excretes food debris and regulates amount of inorganic salts and water in insect body. Gastrin, one of intestinal hormones, is assumed to have an important role of stimulating digestion enzyme secretion in insect intestine. In vertebrates gastrin-secreting cells are well known to locate the antral and duodenal mucosa layers in the stomach and intestine. Gastrin triggers the parietal cells to secrete HCl, that stimulates chief cells to secrete pepsinogen. In insects, studies on the location of gastrin-secreting cells has been actively performed also in central nervous system in the insects such as cockroach and blowfly, but distinctive localization of gastrin immunoreactivity in the digestive organ has been little known until recently. We investigated gastrin reactive cells in the digestive organs of 7th instar larva of wax moth, *Galleria mellonella*. Gastrin-immunoreactive cells were found in the foregut.

C201

Cellular Structural Differentiation of *Orostachys malacophyllus* Fisch.(Crassulaceae)

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Foliar ultrastructure of *Orostachys malacophyllus* Fisch. were examined to find any parallelism with other CAM performing species. The CAM mode is suspected to occur in this species, since it grows along the shore within the range of sea water spray that has been known to affect the photosynthetic pathway in plants. The mesophyll tissues of *O.malacophyllus* consisted of many specialized water storage cells, each containing a large central vacuole with a thin peripheral cytoplasm. A large number and wide variation in size of vacuoles, numerous vesicles or vacuole-like compartment within the vacuoles, invaginations of the plasmalemma, and darkly stained bodies, assumed protein bodies, in the cytoplasm demonstrated features similar to those of other CAM performing species. The variety of cytoplasmic constituents and noticeable features of vacuoles strongly suggest the possible occurrence of CAM in this leaf succulent *Orostachys* species.