

**THE ENDOSTYLE OF TUNICATES, A DIGESTIVE ORGAN ?** *J. Godeaux.*  
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The electron microscopic observations carried out since 1958 on the endostyle of various Tunicates have revealed the presence of a highly organized rough endoplasmic reticulum in the giant (polyploid?) glandular cells of this organ. The presence of such a developed ergastoplasm fully supports the hypothesis that these cells are capable of synthesizing digestive enzymes (1)(2). Thanks to a semi-quantitative micromethod (API-ZYm), the enzymatic activities of extracts of endostyle and stomach (3), at different concentrations, were tested and proved the glycosidases well represented and active in the endostyle, especially the  $\beta$ -glycosidases together with  $\alpha$ -fucosidase. Besides glycosidases, acid phosphatase (lysosomes) and phosphoamidase were active in both extracts. The esterases (-C4, -C8 and -C14) are very weak, chymotrypsine-like enzyme is missing in both organs, but a trypsin-like activity was detected in the stomach. These results have been confirmed by spectrometric micromethods which showed the presence of a trypsin-like enzyme in the stomach and of a chymotrypsine-like enzyme in both organs (after activation by enterokinase); carboxypeptidase A, lactase ( $\beta$ -galactosidase-, maltase ( $\alpha$ -glycosidase), amylase ( $\alpha$ -glycosidase) and invertase ( $\alpha$ -glycosidase) were detected, the stomach extracts being usually the more active. Lipase has no activity in the endostyle and only a very weak one in the stomach. Catalase is present and chitinase missing in both extracts. The presence of digestive exoenzymes in the extracts of the endostyle leads to the conclusion that this organ functions in digestion as its secretion products are mixed with the food particles as soon they are trapped by the mucus, a property evidently bound to microphagy.

(1) J. GODEAUX and H. FIRKET (1968) — *Annls Sc. Nat. Zool.* 10(12):163-186.

(2) J. GODEAUX (1981) — *Annls Soc.r.Zool.Belg.* 111:151-162.

(3) J. GODEAUX (1989) — *Bull. Marine Science* 45: 228-242.