

P 24 Mode of frustule formation and the change of histochemical properties towards polyp formation of frustule in a fresh water hydroid, Craspedacusta sowerbii.

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Polyps of the present hydroid produces frustule which appears at the both lateral sites(left or right) of the middle of the body wall one by another, leaving a sausage-shaped planula-like larva. In a single polyp such alternative formation of frustule is always found. During 10 month-cultivation of single polyp, it grows a colony to consist of several to ten plural polyps by means of polyp budding on body wall. Each polyp in a colony also can make frustules at the both sites. Observation on the 13 colonies for about 10 months revealed that almost the same no. of frustules appeared at the both sites(388 in left, 389 in right). But this does not necessarily mean alternative formation of frustule from one to another site. Examining 26 pair-polyps, each of which are situated on nearly, 591 frustules were found during the 10 months. Among them 432 (73%) were found to be alternatively formed between left and right site in the same polyp, but the remaining 159 frustules appeared continuously more than two times at the same site. Almost of them (130 f., 92%) were found at the definite 2 sites among the 4 of the pair polyps which were localized at the most distant. This suggests that frustule formation takes place at the sites which are regulatory determined between the polyps of a colony.

Frustule becomes polyp within 2-3 days after liberation from mother polyp. During these days frustule showed some change in histochemical properties. In many cells the marked and rapid decrease of the periodic Schiff positive substance was found together with some increase of the cells which include alcian blue positive granular material.