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The Second Example of Metamorphosis of the Medusa from the *intermedia* Form to the Southern Form in *Eutima japonica* (Leptomedusae, Eirenidae)

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With Text-figure 1

Abstract One typical, mature medusa of the *intermedia* form of *Eutima japonica* from Zagashima Island, Mie Prefecture, developed into the mature medusa of the southern form of this species in the laboratory, as had been observed once before by the author in another population from Tsushima Island, Nagasaki Prefecture. The morphology of this female specimen is described. This second example supports the recently proposed demotion of *Eucheilota intermedia* to the *intermedia* form of *Eutima japonica*.

Key words: Leptomedusae, *Eucheilota intermedia*=*Eutima japonica*, metamorphosis, Japan

The *intermedia* form of *Eutima japonica* (Kubota, 1992a) is a hydrozoan found in only two localities, Zagashima Island in Ago Bay, Mie Prefecture, and Asou Bay, Tsushima Island, Nagasaki Prefecture, Japan, commensal with two bivalve species, *Mytilus edulis galloprovincialis* Lamarck and *Barbatia virescens* (Reeve) (Kubota, 1992b, unpubl. data). This form was originally described by Kubota (1984) as a distinct genus and species, *Eucheilota intermedia*, based on the distinct morphology of its mature medusa. However, a change in the taxonomic status of this species has been necessitated not only by ontogenetic and morphological evidence but also by the results of crossing experiments (Kubota, 1991, 1992a). During recent laboratory-rearing of many specimens of this form collected from Zagashima Island, I obtained a specimen that developed into the mature medusa of the southern form of *Eutima japonica*, first passing through the typical mature medusa of a *Eucheilota intermedia* stage. A similar remarkable metamorphosis was observed in one specimen in the Tsushima population as well (Kubota, 1992a) besides a small number of specimens intermediate between the typical medusa of '*Eucheilota intermedia*' and that of *Eutima japonica* (Kubota, 1985, 1992a). Thus the present medusa is the second specimen to confirm that '*Eucheilota intermedia*' is merely a form of *Eutima japonica*. A description of this remarkably metamorphosed medusa of the *intermedia* form follows.

Eutima japonica Uchida, 1925

Synonymy: see Kubota, 1992a, p. 234.

Material. The host bivave, *Mytilus edulis galloprovincialis*, was collected intertidally from Zagashima

Island in Ago Bay, Mie Prefecture, on April 10, 1991. The present medusa was liberated from the commensal hydroid on May 25, 1991. The mussel and, after its release, the medusa were reared in the laboratory in a small, polystyrene vessel, 60 mm wide and 30 mm deep, filled with artificial seawater (Jamarin U) at 22°C, and were fed daily with newly hatched *Artemia* nauplii. When the medusa metamorphosed into the southern form of *Eutima japonica* on the 39th day after liberation, measurements were taken from it in a well-relaxed condition; it was female.

Description of mature medusa. The umbrella is 8.1 mm across and 5.7 mm high. The jelly is thickest at the umbrellar apex, 3.2 mm thick. The peduncle is 1.6 mm long. The manubrium, which protrudes slightly from the velar opening, is 1.7 mm long. The oral lips have sigmoid frills. The stomach is 0.56 mm wide. The gonads are found along the radial canals except in the peduncle and along the most distal parts of the canals, and measure 0.48 mm in maximum width and 2.2 mm in length as viewed from the aboral side. Eight tentacular bulbs and 34 marginal warts are present on the umbrellar margin, and most of them bear lateral cirri on their bases. Up to four cirri are found on each marginal swelling and the total number of cirri is 85 (Fig. 1). Most of the cirri are long, while some are short. In a single quadrant two tentacular bulbs and eight or nine marginal warts are found. There are eight statocysts, each containing 8–12 statoliths (Fig. 1); the total number of statoliths is 81. Between the tentacular bulb and the statocyst two marginal warts are usually

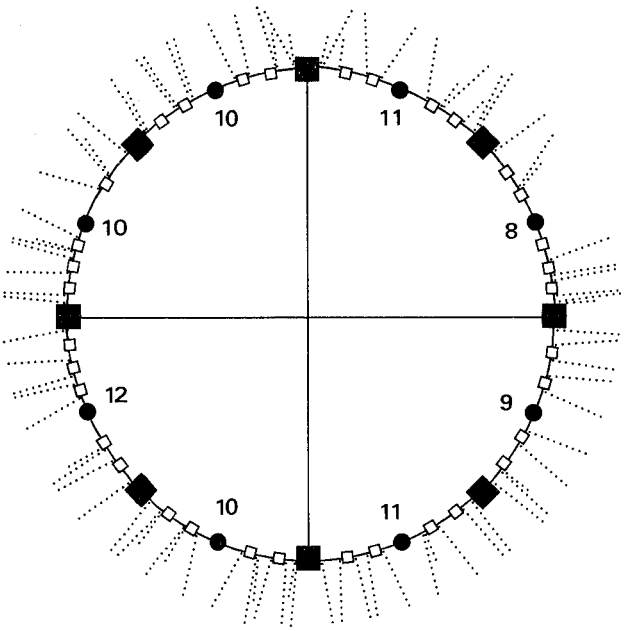

Fig. 1. Diagram showing the arrangement of tentacular bulbs (closed squares), marginal warts (open squares), lateral cirri (dotted lines), and statocysts (closed circles) of a 39-day-old, mature female medusa from Zagashima Island, Mie Prefecture, which has become indistinguishable from the southern form of *Eutima japonica* after first passing through a '*Eucheilota intermedia*' stage, oral view. The number of statoliths per statocyst is also shown.

present, rarely one or three (Fig. 1). The ring canal is green.

Remarks. The present specimen from Zagashima Island developed into a form indistinguishable from the mature medusa of the southern form of *Eutima japonica* about one month after liberation from the hydroid, just as did a specimen from Tsushima Island (Kubota, 1992a). Such a remarkable metamorphosis, being observed only in females, is very rare in both localities of this form. The number of lateral cirri in the present specimen is the maximum recorded so far in the *intermedia* form.

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