Short Paper

Seasonal Isolation between Two Strains
of Rotifer *Brachionus plicatilis*
in an Eel-culture Pond*¹

S and L-strain are most common strains of rotifer *Brachionus plicatilis* O. F. MÜLLER being cultured throughout Japan.¹⁻⁵⁾ As reported previously,⁶⁾ we found both strains in a wild population so that possibility of their differentiation during domestication can be ruled out, and their sympatry under the natural distribution was also confirmed. However, their ecological differences under the wild condition are not well known, yet. Therefore, seasonal fluctuation in population of both strains were investigated in the present study.

Wild rotifers were collected from an eel-culture pond (ca. 1 ha., eel culture had been suspended for five years) located near the mouth of Kongoh River, Matsusaka City, Mie Prefecture, once a week from May to July, 1982. But, observation of fluctuation of the density were disregarded at the collection in the pond. After preservation with 5% formalin solution, identification of the strain and measurement of lorica length, lorica width (maximum) and egg diameter (long one) on each individual with summer egg were carried out. During this period, water temperature in the pond rose from 22.0°C to 28.5°C, but salinity and pH were relatively stable and were in a range of 15.6–20.1‰ and 8.4–8.6, respectively.

During May through early June, L-strain was dominant and only one individual of S-strain was found (Table 1). Thereafter, L-strain gradually became smaller in size (cyclomorphosis same as in the previous paper¹⁾) and became few in number and almost disappeared by the middle of June. After nearly a half month absence of the two strains, they appeared again from early July, but S-strain was dominant this time and only four individuals of L-strain were found (Table 1). Thereafter, L-strain disappeared again, but S-strain continued their multiplication (Table 1).

Ito,^{7,8)} without any classification of the two strains, reported that the wild rotifer appears in May to June (water temperature rises up to 17–20°C), multiplies in summer, decreases in density in November, and dis-

appears at the beginning of December (W. T. is lower than 10°C). Introducing the present result with recognition of the two strains, a hypothetical view can be obtained as follows: L-strain hatches out from resting eggs in early or middle May, it multiplies, lays resting eggs, and disappeared by the early June, subsequently S-strain hatches out in late June, multiplies in summer, lays resting eggs, and alternates with L-strain in autumn. Such a seasonal isolation was observed in the domesticated rotifers when the two strains were cultured together in a large outdoor tank,⁹⁾ and common and perplexed tendency such as drop in the density of cultured rotifers in June might be a reflection of the transitional resting behaviour of the wild rotifers at the alternation. However, further investigation on their ecology year round and in other ponds should be required to prove the hypothesis.

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Table 1. Size (Mean±SD) of L and S-strain of *B. plicatilis* with alternate appearance in the eel-culture pond. Figures in parentheses show the number of rotifers measured

Date	Strain	Lorica length (μm)	Lorica width (μm)	Egg diameter (μm)
May 31	L	278.8±24.9 (116)	177.1±15.0 (116)	102.2± 8.4 (56)
	S	180 (1)	130 (1)	—
June 11	L	267.3±23.8 (30)	166.3±12.4 (30)	122.2±10.8 (28)
June 18	L	255 (1)	175 (1)	110 (1)
June 25	—	—	—	—
July 2	L	252.5±15.0 (4)	158.8± 4.8 (4)	118.8± 8.5 (4)
	S	121.8±12.1 (100)	102.1±10.6 (100)	66.1± 4.7 (85)
July 10	S	110.1± 5.8 (51)	96.5± 6.0 (51)	63.0± 5.0 (51)
July 15	S	116.5± 8.9 (100)	99.1± 6.4 (100)	67.3± 4.9 (100)

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