

A sex chromosome in *Cymathaere japonica* MIYABE et NAGAI

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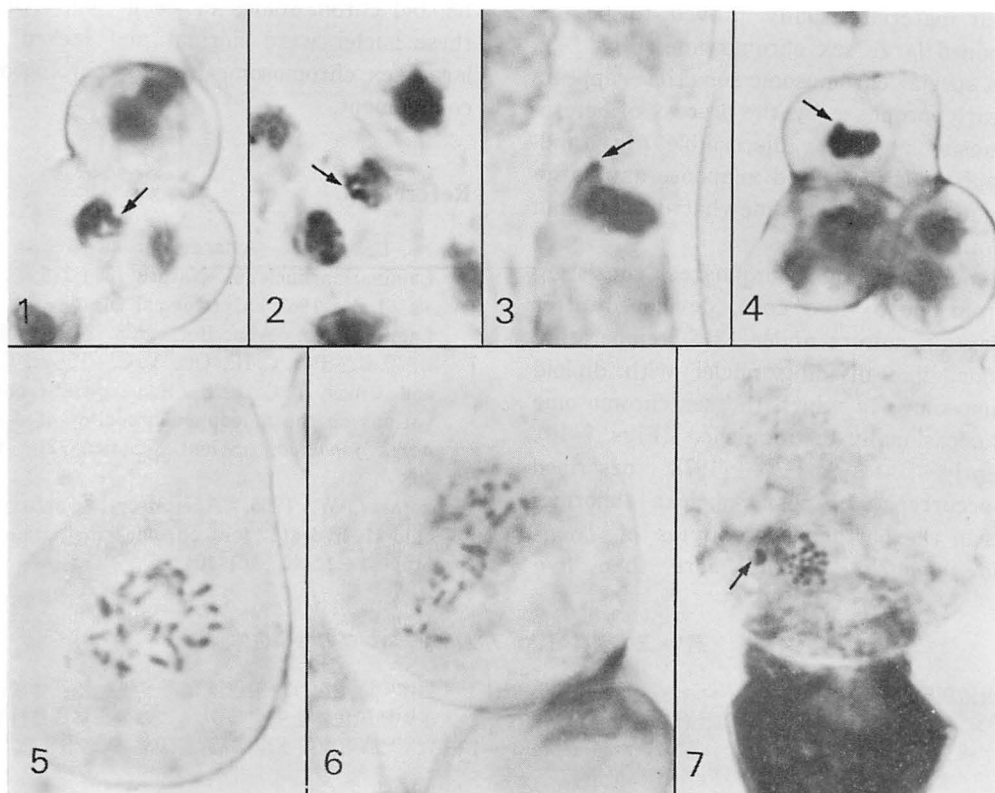
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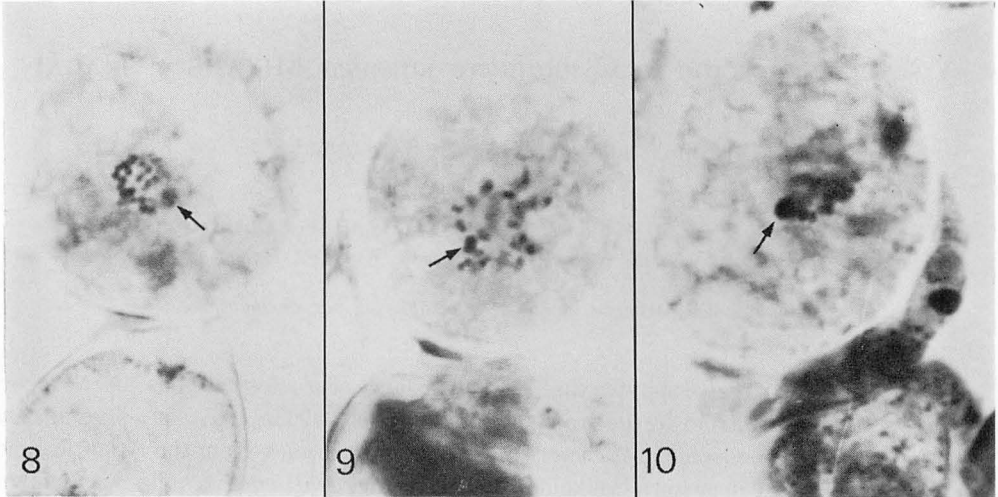
The gametophytes and sporophytes used in culture were obtained from fertile fronds of *Cymathaere japonica* collected in 10 meters depth at Kyoecho, Rausu in eastern Hokkaido on September 26, 1980. The fronds were fixed with acetic alcohol (1:3) and stained by the method recommended by Wittmann (1965) for cytological observations. The haploid chromosome number ranged from 28-34 in the cells of female gametophytes (Fig. 5) and a reliable number seems to be 33, as shown in Table 1. The presence

of a large chromosome has been reported by Evans (1963, 1965) in several Laminariaceae species from the Atlantic, among which *Saccorhiza polyschides* was shown to

Table 1. Chromosome count in fifty cells of female gametophytes of *Cymathaere japonica*.

Number of chromosome (n)	28	29	30	31	32	33	34
Number of cell	4	3	6	7	9	14	7





Figs. 1-10. Mitosis in the gametophytes and sporophytes of *Cymathaera japonica* Miyabe et Nagai. 1-4. Sex chromosome (arrows) at metaphase in the cell of male gametophytes; 5. Chromosomes in the cell of female gametophyte; 6. Metaphase (2n) in the sporophyte at one-celled stage; 7-10. Sex chromosome (arrows) at metaphase in the sporophytes of one-celled stage. Magnification; All figures, $\times 2,300$.

have a markedly large X-chromosome in the female gametophyte. The well defined metaphase figure in the male gametophytes in our material usually proved to be one U-shaped large sex chromosome (Figs. 1-3). This special chromosome sometimes appears by early prophase by the process of heteropyknosis and is discernible in mid-metaphase (Fig. 4) and anaphase as a large chromosome stained somewhat deeper than the other chromosomes.

Numerous young sporophytes, consisting of from one to five cells, developed after 14 days in culture under 13°C temperature provided fine dividing nuclei with diploid chromosomes in which the sex chromosome was occasionally distinguished (Figs. 7-10). Recently FANG *et al.* (1978) described the occurrence of some nuclear abnormalities in the parthenosporophytes of *Laminaria japonica*. Among more than five

hundred sporophytes with dividing nuclei observed we could see nine parthenosporophytes at the two-celled stage with haploid chromosomes in each cell. All of these nuclei were normal and lacked the large sex chromosome in their chromosome complement.

References

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籾 熙*・三本菅善昭**：アツバスジコンプの性染色体

北海道羅臼で採集したアツバスジコンプを培養し、配偶体と芽胞体の固定を行い染色体を調べた。雌性体では $n = 約33$ の染色体数が得られた。雄性体と芽胞体は通常1ヶの大きい性染色体を有するが、この染色体は雌性体ではU字状を呈することを確かめた。(*041 函館市港町3-1-1 北海道大学水産学部 **085 釧路市桂恋 116 北海道区水産研究所)