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Nuclear Divisions in the Tetrasporangia of *Acanthophora spicifera* (Vahl) Boergesen and *Laurencia papillosa* (Forsk.) Greville

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The nuclear divisions in the tetrasporangia of *Acanthophora spicifera* (Vahl) Boergesen and *Laurencia papillosa* (Forsk.) Greville collected from Ubatuba, Brazil were ascertained to be regular meiosis. Chromosome count in the tetrasporangia was n=32 in *Acanthophora spicifera* and n=26 in *Laurencia papillosa*.

Introduction

During the course of the study on cytology on several species of algae collected from Ubatuba, Brazil in October 1973, we happened to succeed to observe the process of the nuclear division in the tetrasporangia of *Acanthophora spicifera* (Vahl) Boergesen and *Laurencia papillosa* (Forsk.) Greville, belonging to Rhodomelaceae (Rhodophyta). The chromosome number of *Laurencia papillosa* was once reported by Yabu and Kawamura[1] to be n=20 in the materials collected from Shikoku in Japan, but it did not agree to our study, while on *Acanthophora spicifera*, no cytology has been treated hitherto. The present work was supported by the "Fundação de Amparo à Pesquisa do Estado de São Paulo" (Grant Biol. 73/114) to which we are much indebted.

Materials and Method

The matrials were collected from Ubatuba in the State of São Paulo, Brazil in October 1973 and they were brought to the laboratory room of the Marine Biological Station of the University of São Paulo at São Sebastião and kept alive in glass vessels filled with sea-water until fixing. They were fixed with alcohol acetic acid solution (3:1). Preparations were made according to simple technique recommended by Wittmann.[2]

Results

Acanthophora spicifera (Vahl) Boergesen

The young tetrasporangia usually contain granules being dyed with staining solution and they disappear by the time of anaphase I. The nuclear behavior

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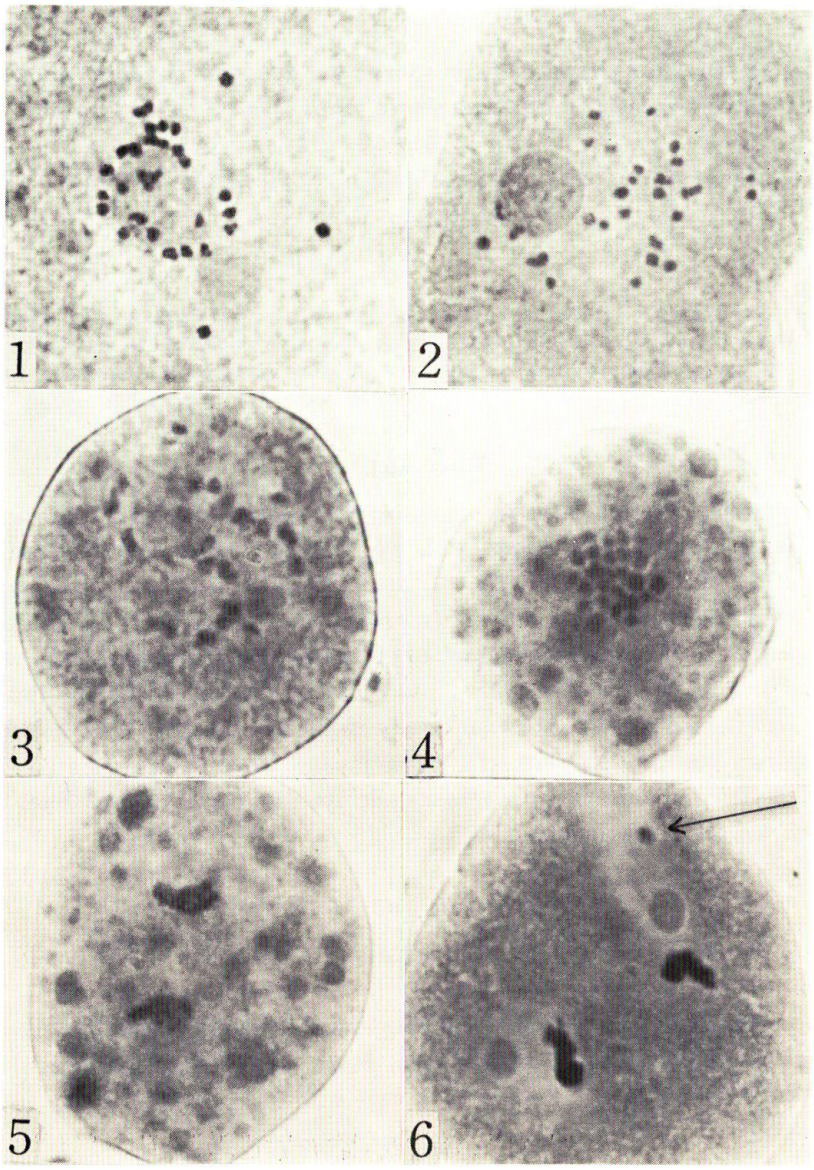

Figs. 1 & 2. Diakinesis in young tetrasporangia of *Acanthophora spicifera*.
Figs. 3–6. Various stages of the first mitotic division in young tetrasporangia of *Laurencia papillosa*: Fig. 3. Diakinesis; Fig. 4. Metaphase; Fig. 5. Anaphase; Fig. 6. Telophase. Arrow mark indicates an odd chromosome which is still remaining apart from the mass of chromosomes.
(Magnification: All figures ×1350)

within tetrasporangia is entirely regular and it passes through distinct pachytene, diplotene and diakinesis phases in prophase I. Chromosome count was possible only in diakinesis (Figs. 1 & 2) and early metaphase of the first mitotic division. However, it was not so easy, and thirty-two bivalent chromosomes were ascertained to occur in our careful observations.

Laurencia papillosa (Forsk.) Greville

The same granules which appear by the time of anaphase I in the tetrasporangia of *Acanthophora spicifera* described above were also observable in those of *Laurencia papillosa* (Figs. 4 & 5). The nuclear movement in tetrasporangia was quite similar to that of *Acanthophora spicifera*. At diakinesis and metaphase of the first mitotic division of this species, chromosome count was not so difficult as in that of *Acanthophora spicifera* due to more smaller number of chromosomes (Figs. 3 & 4), and it was observed to be n=26 even though it has been reported to be n=20 by Yabu and Kawamura.[1] As to the nucleus in tetrasporangia of this species, Yabu and Kawamura[1] state: "In metaphase of the first and the second nuclear divisions a large centrosome-like body was always present at each pole." In our study such large body was observed not always but occasionally at or near the pole, but it was not so large as those that had been shown in the figures (Pl. II, figs. 18 & 19; Pl. XII, figs. E-J) by Yabu and Kawamura.[1] Judging from the size and existing state of the body in our preparations it was supposed to us as an odd chromosome although we must ascertain more for its features. The odd chromosome which is seen remaining apart from the mass of the chromosomes even at telophase is shown in Fig. 6.

References

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