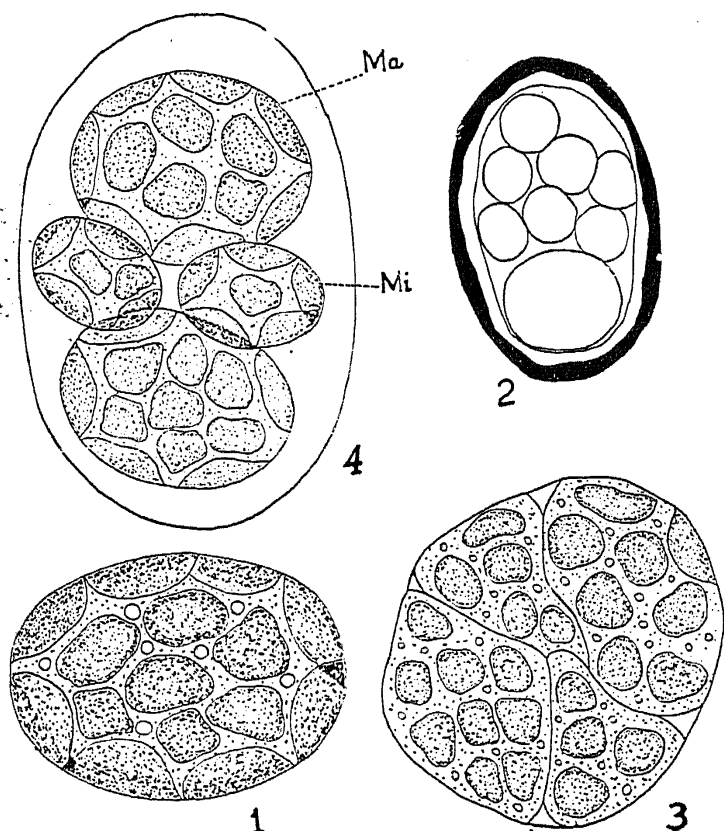


times bigger than micro-autospores (Fig. 4 *Mi*), and measure 23.4-27.3 μ long and 15.6-19.5 μ broad, while micro-autospores are 8.5-14.6 μ long and 6.8-9.7 μ broad. The autospores, when fully formed, are liberated by the gelatinization of the parent cell-wall. The macro-autospores after their liberation from the parent cell wall enlarge somewhat and behave just like the parent cell in producing four autospores of two different sizes. The exact fate of the micro-autospores is not yet clearly understood, but the presence of large number of small yellow cells in the sample with degenerating protoplast indicates that probably they degenerate.



FIGS. 1-4. *Oocystis kumaonensis* sp. nov. Fig. 1. A young vegetative cell, showing discoidal chloroplasts. Fig. 2. An older resting cell with thick cell-wall. Fig. 3. Cell, showing the bipartition of the parent-protoplast into four unequal daughter protoplasts; Fig. 4. Cell, showing two macro-autospores (*Ma*) and two micro-autospores (*Mi*). (Figs. 1-4, $\times 500$.)

Examination of the literature (Lemmermann, Brunthaler and Pascher, 1915; Fritsch, 1935; Smith, 1951, among others) has revealed no described species of *Oocystis* with attributes entirely like those described above. The alga has been described as a new species and is called *Oocystis kumaonensis* sp. nov.

Oocystis kumaonensis sp. nov.—Cells solitary, broadly ellipsoidal with rounded poles, 31.2-35.1 μ long and 19.5-23.4 μ broad; cell-wall thin and smooth in younger cells, appreciably thickened in older resting cells; chloroplasts parietal, discoidal, with pyrenoids; reproduction

by four cruciately arranged autospores, two big (macro-autospores) and two small (micro-autospores); macro-autospores three times bigger than micro-autospores; macro-autospores 23.4-27.3 μ long and 15.6-19.5 μ broad, micro-autospores 8.5-14.6 μ long and 6.8-9.7 μ broad; liberation of autospores by gelatinization of the parent cell-wall.

Habitat.—From a dipping rock in the premises of D.S.B. Government College, Naini Tal.

Culture number.—KPS-2.

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August 31, 1959.

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SOME OBSERVATIONS ON VEGETATIVE PROPAGATION OF *ZIZIPHUS MAURITIANA*, LAM. (*BER*) FROM GOOTEES AND CUTTINGS WITH THE AID OF GROWTH REGULATORS

Ber is commonly propagated by seed. Ring and shield budding are the only methods of its vegetative propagation practised at present. So far, no effort has been made to study the ability of growth regulators on rooting the air-layers and cuttings of this useful fruit plant. A trial was, therefore, laid out to find out the possibilities of propagating *Ber* (*Ziziphus mauritiana*, Lam.) by gootee and cutting.

One to two years old shoots (on 12-15 years old trees) were treated with 10,000 p.p.m. each mixture of indole butyric acid and alpha-naphthalene acetic acid in lanolin paste. Treated gootees were covered with wet sphagnum moss and tied firmly with plastic wrappers.

Ringed (shoots on which about 1/2" ring of bark was removed a fortnight earlier) and unringed cuttings approximately 9" in length with 5 to 7 buds and two leaves at the apex were prepared. Basal ends of these cuttings