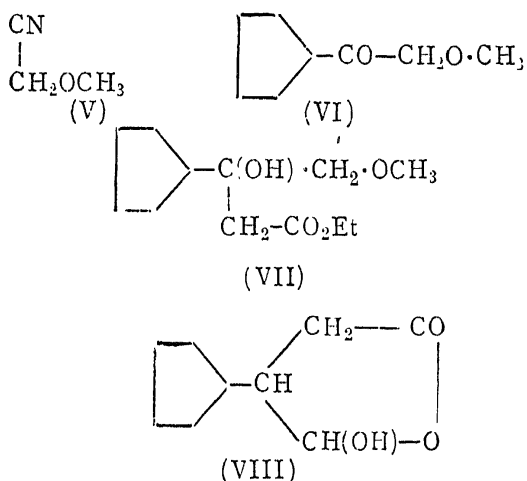


yield the hydroxy ester (VIII), b.p. 140°/6 mm. Simultaneous dehydration, demethylation and



lactonisation of (VII) was effected by HBr in acetic acid. Distillation of the product so obtained yielded in the place of the expected $\alpha\beta$ -unsaturated lactone² (IV), the requisite $\beta\gamma$ -unsaturated- γ -lactone (III),⁵ b.p. 155°/5 mm. The proof for the structure (III) would seem to lie in the fact of its immediate response to the very characteristic Legal's test,⁶ its slow reduction of the Tollen's reagent,⁵ and its rather high b.p. This point is, however, kept open. On treatment with absolute methyl alcoholic potash (3%), (III) furnished the hydroxylactone, presumably (VIII), tautomeric with the aldehydo acid (II). The semicarbazone of this newly prepared aldehydo acid melted at 196° and under identical conditions of heating* the semicarbazone previously described by the author^{1b} melted at 196°, and the mixed m.p. of the two specimens was not depressed.

The lactone (III) is almost insoluble in water and is not affected appreciably by prolonged boiling with water. Further work is being carried on in the direction of incorporating features in (III) which would make it water-soluble.

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^{1a} Ranganathan, *Curr. Sci.*, 1937, **6**, 277.

^{1b} —, *J. Ind. Chem. Soc.*, 1939, **16**, 107.

² Wjndaus, *Wiss. Math. Phy. Kl. Göttingen*, 1935, **70**,

³ Fried, Rubin, Paist and Elderfield, *Science*, 1940, **91**, 35.

⁴ Henze and Rigler, *J. Amer. Chem. Soc.*, 1934, **56**, 1350.

⁵ Cf. Wolff, *Annalen*, 1885, **229**, 250, 254.

⁶ Jacobs, Hoffmann and Gustus, *J. Biol. Chem.*, 1926, **70**, 1.

* The melting point varies with the rate of heating.

Soap Gels in Pinene

PRASAD AND MATHUR¹ found that sodium oleate dissolves in pinene at 140° and the clear solution sets, on cooling, to a transparent gel. It has been found by the authors that potassium oleate, sodium palmitate and sodium stearate also dissolve in pinene when heated to 140°, and a clear solution thus formed sets, on cooling, to a transparent gel. The time of setting of these gels has been determined by Fleming's method and has been found to decrease with (i) an increase in the amount of soap in the gel and (ii) a decrease in the temperature at which the solution is allowed to cool.

All these gels exhibit the phenomenon of syneresis but the rate of syneresis of different gels is different. It is maximum in the gels of sodium oleate and least in those of sodium palmitate.

A systematic study of the several properties of these gels has been started in this laboratory and some of the results obtained are being communicated for publication elsewhere.

MATA PRASAD.

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¹ Prasad and Mathur, *Curr. Sci.*, 1940, **9**, 119.

Iwanoffia terrestris (Iwan.) Pascher from Fyzabad

THIS terrestrial member of the order Chaetophorales was originally described by Iwanoff from Russia in 1899 as *Stigeoclonium terrestre*. It was found growing on moist earth. On account of the presence of biciliate macro- and micro-zoospores, Pascher described it as a new

genus named as *Iwanoffia* in 1905. *Iwanoffia* differs from *Stigeoclonium* in its terrestrial habitat and the presence of biciliate macro- and micro-zoospores, which are quadriciliate in *Stigeoclonium* which is a purely aquatic genus.

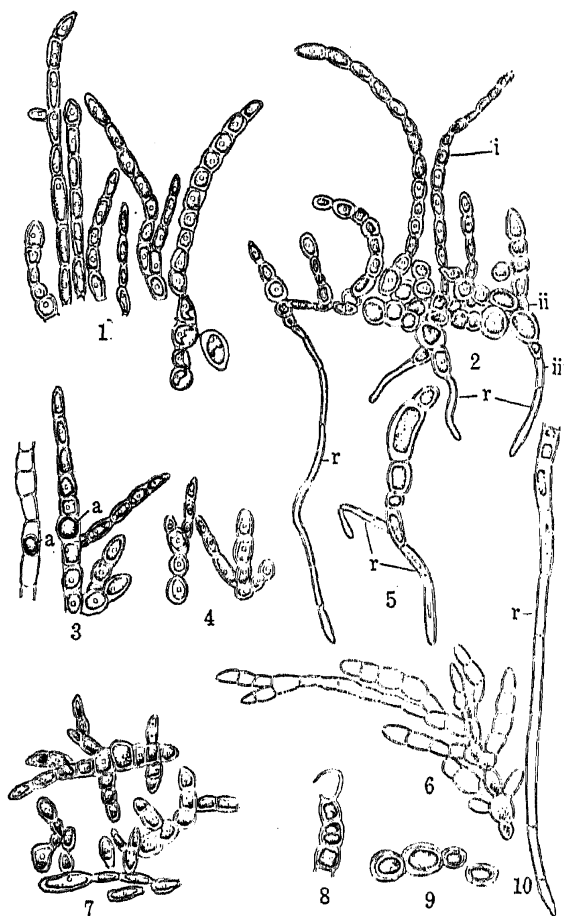
So far *Iwanoffia* has not been recorded from India. This alga which resembles Iwanoff's alga in many features was originally collected by the present author in January 1939 growing on moist bricks of the arch of a masonry bridge over a small dried ravine near Bharat Kund in Fyzabad district. It formed a yellowish-green encrustation on the bricks resembling the coating of *Pleurococcus* on pitchers and moist wood-work during the monsoons. Only the lowermost tiers of bricks which were in contact with the moist clay of the ravine had the covering of this alga. Mostly it was found in the form of a pure growth, and only in a few patches the protonema of a moss was found mixed with it. Later on it was also collected in the dry months of April, May and June, when it appeared in the form of a yellowish-brown powdery covering.

The plant body in this alga is differentiated into three well-marked regions, which may be described as projecting, prostrate, and rhizoidal systems. In this respect this alga resembles *Fritschiella tuberosa* Iyengar as the general scheme of organization of the thallus is the same in both. However, in detail differences are numerous, and when closely examined this alga is readily distinguishable from *Fritschiella*.

Projecting System.—Filaments of the projecting system are usually unbranched and curved in a bow-like manner (Figs. 1 and 2). However when branching occurs, it is very sparse, and it is rare to find branches of a second or third degree (Figs. 4 and 5). In this respect this alga differs markedly from *Fritschiella* with its characteristic richly-branched fanlike projecting system. Terminal cells have blunt apices. Each cell contains a single ulotrichaceous chloroplast, each bearing a solitary pyrenoid. Chloroplasts are deep green in colour in specimens collected from moist bricks, while they are slightly bluish-green in samples

scraped from dry bricks. Cells of the projecting system are 5–9 μ broad and 9–27 μ long and are cylindrical to barrel-shaped in appearance. Filaments of the projecting system are rather loosely connected with the cells of the prostrate system and easily get detached.

Prostrate System.—Cells of the prostrate system, which are highly developed in this alga, form a dense mat-like parenchymatous structure closely encrusting brick-particles (Fig. 2). Cells of this system are usually more or less



Figs. 1-10. *Iwanoffia terrestris* (Iwan.) Pascher.

Fig. 1.—Filaments of the projecting system; Fig. 2.—A plant showing projecting filaments (i), parenchymatous cells of the prostrate system (ii), and rhizoids (r); Fig. 3.—Aplanospores (a); Fig. 4.—Branching in filaments of the projecting system; Fig. 5.—A dissected plant showing rhizoids (r); Fig. 6.—A part of a plant showing prostrate and projecting systems. The cells of the prostrate system are dotted; Fig. 7.—Cells of the prostrate system; Fig. 8.—An empty cell from which a zoospore had escaped; Fig. 9.—Akinetes; Fig. 10.—A rhizoid.

All figs. are $\times 220$, excepting 5 and 10 which are $\times 245$.

rounded. They are on the average 7–14 μ in diameter. Very probably the cells of the prostrate system serve the function of perennation, and in the samples collected in the dry

month of June, it was found that these cells had developed into akinetes with thick stratified walls and contents of a homogeneous nature (Fig. 9).

Rhizoids.—Rhizoids usually arise from the cells of the prostrate system (Figs. 2 and 5). In some cases it was found that the lower cells of the projecting system were directly prolonged into long rhizoidal cells (Fig. 10). In some cases the rhizoids are 1–2 celled, while in others, they are fairly long many-celled structures. Rhizoids are so closely attached to brick-particles, that it is very difficult to detach them. When first examined they escaped notice, as they get mutilated when the alga is scraped. Upper cells of the rhizoids usually contain fragments of chloroplasts, while lower cells are usually hyaline.

Some of the cells of the projecting system were found empty, and an apical cell was found ruptured (Fig. 8), possibly due to the escape of zoospores. However no zoospores were actually observed by the author.

Aplanospores.—In some cells of the projecting system, it was seen that the contents had rounded off into spores which may be described as aplanospores. May be these are arrested zoospores which have developed thick walls, as seen in certain species of *Ædogonium*.

In its structural organization *Iwanoffia* stands midway between *Stigeoclonium* and *Fritschella*, and marks an important stage in the conquest of land by algal pioneers.

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Occurrence of *Sclerospora graminicola* (Sacc.) Schroet. on *Setaria verticillata* Beauv. in Allahabad

AMONG the downy mildews *Sclerospora graminicola* (Sacc.) Schroet. is well known in India as the cause of the green ear disease of bajra (*Pennisetum typhoideum*) which, according to Mitter and Tandon¹ may damage up to 45 per cent. of the plants in low-lying fields

in Allahabad. Butler and Bisby² record this parasite on only one other host, viz., *Setaria italica*, besides bajra. We have observed this fungus growing on *Setaria verticillata* Beauv. in a shady plot in the University Botanical Gardens and we believe it has not been recorded before on this host in India. So far only the conidial stage has been found. Amongst the plants growing in the garden most of the leaves are attacked. The infected areas soon turn brown and wither. A detailed description of the parasite on this host will shortly follow.

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¹ Mitter, J. H., and Tandon, R. N., *Journ. Ind. Bot. Soc.*, **9**, 243.

² Butler and Bisby, *The Fungi of India*, 1931, p. 7.

Note on *Sorghum Stapfii*. C.E.C. Fischer

Sorghum Stapfii. C. E. C. Fischer is a wild grass native to India. Hooker¹ described it as *Andropogon Stapfii*. Index Kewensis Suppl. II (1886–1900) gives this plant the status of an independent species. Gamble² classified it under the genus *Sorghum*. This plant has not been mentioned by Snowden³ in his "Cultivated Races of Sorghum".

The chromosome number of this plant as counted in meiosis is $n = 10$. The meiosis is regular. The chromosomes are rather small.

It is interesting to note that *S. Stapfii* easily hybridizes with *S. sudanense* Stapf. and in the progeny of the hybrid segregations occur for both types of plants. *S. sudanense* as also *S. arundinaceum* Stapf., *S. verticilliflorum* Stapf. and *S. aethiopicum* (Hack) Ruper. ex Stapf. are considered by Snowden (*l. c.*) to be primarily concerned in the evolution of the cultivated sorghums. *S. sudanense* hybridises easily with cultivated sorghum [*S. dochna* Forsk. Snowden and also with *S. virgatum* Stapf. Snowden (*l. c.*)] *S. Stapfii* thus forms yet another wild sorghum with which *S. sudanense* hybridizes easily,