

In India some work on the different aspects of detergent pollution has been done (Ghosh *et al.*⁵, Mahajan *et al.*⁶, and Gupta⁷). No attention, however, has been paid to assess its role on the growth of aquatic plants.

In the present study effect of various concentrations (2, 5, 10, 30, 50, 70, 100 and 200 mg/l) of a popular synthetic detergent powder 'Super Surf' has been studied on the growth of *Spirodela polyrhiza* (L) Schleid—a common duck weed found around Gorakhpur.

At each concentration, 1 g of the living plant material was inoculated and the growth behaviour was observed at 24 hr intervals for 15 days. The control set was kept in tap water. All the sets had 3 replicates. The chlorophyll content of 1 g of fresh plant was also estimated as per procedure recommended by Arnon¹.

It was observed that all the concentrations, above 50 mg/l of the detergent powder, were lethal to the plants. The maximum period, for which the plant survived, was 10 days in 70 mg/l and minimum 3-4 days in 200 mg/l.

When compared with the control set, it was observed that the chlorophyll content varied from 0.096 mg/g to 0.15 mg/g. It was maximum in 2 mg/l concentration and minimum in 50 mg/l concentration (Table I).

TABLE I

Chlorophyll content of Spirodela polyrhiza (L) Schleid in different concentrations of detergent powder 'Super Surf'

Concentration of Detergent Powder (mg/l)	Chlorophyll content of <i>Spirodela polyrhiza</i> (mg/g)
2.0	0.15
5.0	0.136
10.0	0.125
30.0	0.111
50.0	0.096
Control	
Tap water	0.144
<hr/>	
Chlorophyll content of <i>Spirodela polyrhiza</i> before experimentation	0.140 mg/g

The constituents in 'Super Surf' (information obtained from manufacturer) were more or less similar to that of phosphorus containing synthetic detergents tested by Forsberg².

The phosphate in the detergent in low concentration seems to stimulate the growth of the *Spirodela polyrhiza*, as has also been observed by Forsberg², while assessing the role of detergents on the growth of algae.

The death of plants was due to inhibitory effect of other components of detergent powder, like, alkyl benzene sulphonic acid and sodium salt.

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A NEW RECORD OF *KORDYANA* RAC. (EXOBASIDIACEAE) FROM MAHARASHTRA

DURING our recent mycological survey an interesting species of *Kordyana* Rac. (F. Exobasidiaceae) was collected from the Forests of Mahabaleshwar (Alt. 1360 mts) near Poona parasitizing leaves of *Commelina maculata* Edgew. The infection was characterised in the form of scattered irregular to subcircular chlorotic lesions turning deep-brown surrounded by yellow band at maturity. The fungus was found to grow profusely on these areas with the production of whitish powdery fungus growth consisting of tufts of basidia emerging through the stomata on the lower surface of the leaves. The fungus sporulated profusely on the host under conditions of cool and humid weather of monsoon (August-September). Both young as well as old leaves revealed typical infection equally well which in the advanced stages developed into necrotic lesions over-grown by the wooly fungus (Fig. 1A). No other part of the plant showed any infection. The fungus had the following morphological characters:

Hymenium semi-globose to globose, stromatic. Basidia external emerging in tufts bisterigmatic, long, cylindrical, hyaline, simple, measuring 22.8-30.4 × 3.8-4.7 μm. Basidiospores simple, hyaline, 1-celled, oblong to elliptical, measure 6.7-7.6 × 3.8-5.7 μm. Paraphyses numerous, flexuous and apically coiled (Fig. 1 B, C, D).

Diagnosis and Identity

A perusal of literature showed no report of any species of *Kordyana* on *Commelina maculata* Edgew. so far. The collection under study, on comparison, was found to differ greatly from *Kordyana indica* Gaum.,

in possessing short basidia and smaller basidiospores. Besides, it also proved to be distinct from *Kordyana colebensis* Gaum., as the latter is characterized by complete absence of paraphyses. However, the present fungus agreed in general morphology with *Kordyana polliae* Gaum.² (affecting *Pollia sorzogonensis* Endl. a tropical species of Commelinaceae) except for the size of basidiospores which are significantly smaller in the present collection as compared to *Kordyana polliae* (basidiospores 15-21 × 5-8 μm). Hence, the fungus under study has been identified as *Kordyana polliae* var. *microspora*, var. nov.



FIG. 1. *Kordyana polliae* var. *microspora* on *Commelina maculata*. A. Infection spots on leaves (Habit). B, C and D. Morphology of the fungus showing hymenium, basidia, and basidiospores.

So far, there are only three records of *Kordyana* spp. from India, viz., *Kordyana colebensis* Gaum. on *Commelina attenuata* Koen., *Kordyana indica* Gaum. on *C. benghalensis* L¹, and *Kordyana boswelliae* Thirum. Patel and Dhande on *Bowellia* sp⁴. Hence this is the first report of *Kordyana polliae* var. *microspora* on *Commelina maculata* Edgew. from India³.

The material has been deposited at M.A.C.S., Poona under No. AMH 2186.

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INDUCED TETRAPLOIDY IN MEDICINAL YAM *DIOSCOREA FLORIBUNDA* MART. AND GAL.

Dioscorea floribunda Mart. and Gal. is a new world medicinal yam cultivated for the alkaloid, diosgenin. This forms an ideal material for improvement through polyploidy, since it is propagated vegetatively and the economical product is the underground tuber. The genome of this species ($n = 18$)¹ is doubled through colchicine and a comparison of the diploid and tetraploid is given in this report.

Seeds were germinated in petri dishes and the seedlings were treated with 0.25% aqueous colchicine solution, when the seedlings were about 2" in length. Seedlings were kept in petri dishes containing colchicine solution with only their root system dipping under the solution. The treatment was given for 20 hours. The seedlings were washed for 8 hours and sown in plastic bags. Three month old seedlings were transplanted in the field. Out of 10 surviving seedlings, 4 were females and 6 were males. Among the males, one was found to be a complete tetraploid and the other had several tetraploid chimeras. Chromosome number ($4n = 72$) was verified in acetocarmine smears.

Morphologically, the autotetraploid is more robust than the diploid with larger and thicker leaves, longer petioles, larger stomata, more number of shoots, larger stem diameter, longer internodes, more number of flowers per inflorescence and larger pollen grains (Table I, Fig. 1),

TABLE I

Morphological comparison of the induced tetraploid with its parent

Sl. No.	Character	Tetraploid	Diploid
1.	Leaf area (cm) ²	31.20	23.28
2.	Leaf thickness (μ)	22.66	18.80
3.	Stomatal length (μ)	3.50	2.00
4.	Petiole length (cm)	2.82	2.12
5.	Stem diameter (cm)	0.10	0.07
6.	Internode length (cm)	5.60	3.70
7.	Number of inflorescences	35.00	30.00
8.	Mean number of flowers per inflorescence	67.00	57.4
9.	Pollen diameter (μ)	3.60	2.33

Chromosome configurations ranging from univalents to quadrivalents occurred in the tetraploid in varying frequencies (Fig 2) but with a predominance of bivalents and quadrivalents (Table II). The diploid parent has regular meiosis with 18 bivalents. In spite