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BLUE GREEN ALGAE AS MANURE ON GROWTH AND COMPOSITION OF PLANTS

A.K. SHARMA* AND R.B. SHARMA
Deptt. of Botany, Saraswati P.G. College, Hathras (U.P.)
***Research Scholar, Mewar University, Chittorgrah (Rajasthan).**

INTRODUCTION

Blue green algae play an important role in the fixation of atmospheric nitrogen in the rice fields. Recent researches have shown that blue green algae can be used as biofertilizers for rice cultivation (Venkataraman, 1977). In this paper we describe the influence of algae as manure on the yield and composition of Linseed plant.

MATERIALS AND METHODS

Linseed (*Linum usitatissimum* L.var. Shabhra) plants were raised in well mixed garden soil having algae (blue green algae) as manure in pot culture conditions. The levels of algae studied were Nil (contorl), 5, 100 and 300 gm/kg soil. At 60 days growth, top parts of plants and at 120 days growth grains of plants were sampled, washed thoroughly in running tap water, rinsed with distilled water to avoid any surface contamination, blotted, chopped and dried for determination, of yield and tissue concentration of nutrient elements as described earlier (Sinha *et al.,* 1984). Standard techniques were employed for determination of ascorbic acid, Chlorophyll and Catalase and peroxidase activity in fresh material of 60 days old tops, the data were statistically analysed and tested for significance at 5 percent and 1 percent probability levels.

RESULTS AND DISCUSSION

Dry matter yield to tops of 60 days old plants were found in increase over control, with the increase in levels of the supply of algae, 100 g/kg soil supply level of algae showed maximum increase in yield and was found significant (P = 0.05) over control. Similar observations were found to be to be highly significant (P = 0.01) over control. This increase in yield is in conformity with the results of Rao *et al.,* (1977), Huang (1978), Kaushik and Venkataraman (1979), Latchumanan (1979), Rodgers *et al.* (1979), Kannaiyan *et al.,* (1981), Singh *et al.* (1981), Chandrakaer *et al.* (1983), Bagal and Patil (1984), Bongale (1984), Venkataraman (1984), Main and Stewart (1985), Roger *et al.,* (1985) and Mohan *et al.* (1987).

Increase at 50 gm algae/kg soil supply level for peroxidase activity in tops of 60 days growth and tissue magnesium and iron in grains were found to be highly significant (P = 0.01) and for tissue sulphur significant (P =0.01) over control.

Ascorbic acid content in tops and chlorophyll content in leaves of 60 days old plants and tissue calcium and potassium in grain showed maximum increase at 100 gm algae/kg soil level, over control and these increase were found to be highly significant (P=0.01). The increase in Ascorbic acid is not in conformity with the result of Kaushik and Venkataraman (1979) who observed insignificant effect on tomato. Although the increase in AA and chlorophyll content is in agreement with the results of Mohan *et al.,* (1987).

200 gm algae/kg soil level, for tissue catalase in 60 days plant tops and tissue nitrogen and manganese in grains showed highly significant (P=0.01) increase over control. The increase in catalase activity is in agreement with the results of Mohan et al., (1987). Tissue phosphorus did not show any significant change in grains of the plants.

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Dr. R.B. Sharma (M.Sc., Ph.D.), Department of Botany, Saraswati P.G. College, Hathras-204101 (U.P.) Working from 1982 to till date. Specilization in Plant Pathology and Phycology. Ph.D. From Agra College Agra (Agra University, Agra in 1982). Research Papers Published 70, Accepted 08, Communicated 20 (National and International Journals), Paper presented in National & International Symposium 30, No. of Ph.D. (Dr. B.R.A. University, Agra : Awarded 10, Registered 05, No. of Ph.D. (Mewar University, Chittorgarh, Rajasthan Registered 04).

Table-1 : Effect of Algae on growth and composition of Linseed (*Linum ustitatissium* L. Var Shubhra) plants.

Observations	Plant Part	g/Algae Kg Soil				L.S.D.	
		Nil	50	100	200	P = 0.05	P = 0.01
g.d.m. yield/plant	Tops	0.049	0.064	0.067	0.054	0.015	0.022
g.d.m. yield/plant	Plant	1.76	2.06	3.03	2.67	0.06	0.09
mg Ascorbic acid/100 g.F.W.	Tops	114	118	124	124	6	9
mg Chlorophyll/100g.F.W.	Leaves	99	85	107	107	2	4
Unit Catalase/g.F.M.	Tops	8.7	9.8	10.4	11.1	0.3	0.4
O.D. peroxidase	Tops	0.7	0.8	0.6	0.5	0.06	0.09
% Ca	Grains	0.06	0.07	0.08	0.07	0.06	0.09
% K	Grains	0.67	0.67	0.78	0.78	0.06	0.09
% Mg	Grains	0.070	0.073	0.068	0.060	0.002	0.003
% P	Grains	0.44	0.43	0.46	0.41	0.04	0.06
% S	Grains	0.034	0.062	0.057	0.051	0.03	0.04
% N	Grains	1.00	1.50	2.10	2.15	0.07	0.10
ppm Fe	Grains	10	15	10	15	2	3

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