tissues was high in the earlier cuttings and low in the latter cuttings which may be due to the maximum meristematic activity and efficient translocation of the photosynthates to the growing apex (Kamidi and Wanjala, 1988). It is possible that heavy tillering would lead to competition for light and nutrients. This is conjuction with the building up to adverse microclimate would have reduced the photosynthesis in those hybrids, which showed promise over Co.1, as evidenced by the increased height growth, but at the cost of carbohydrate accumulation, thereby reducing the yield. However, in the present study no attempt was made to measure the photosynthesis and leaf orientation. Though Co.1 possessed minimum tillers, an increased in plant height coupled with high leaf activity would be the possible reason for the yield enhancement.

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INFLUENCE OF BLUE-GREEN ALGAE AND CERTAIN ORGANIC AMENDMENTS ON THE DEGRADATION IN SUBMERGED SOILS

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r-HCH hen applied to blue green algae - (BGA) soil water system was found distributed more in the water than in soil and algae. Though degradation of r-HCH was observed in soil, water and BGA, still a considerable part of the initial residues remained even after 70 days. Among the organic amendments, sewage sludge was the most effective in helping the degradation of r-HCH and it was highly degraded within 5 weeks of time. The r-HCH persisted in greater quantities even after 5th week in soil with BGA.

HCH is known to persist for a longer period in soil. Biodegradation of HCH is greater in submerged soil and under anaerobic conditions (Mac Rae *et al.*, 1967). Surface application of r-HCH at low or normal rates to water logged rice soil appeared to affect only the diatom population while at higher rates affect the nitrogen fixing BGA (Ishizawa and Matsuguchi, 1966). The insecticide was found to selectively stimulate the indigenous soil BGA (Raghu and MacRae, 1967). A knowledge of its effect on the nitrogen fixing BGA and its degradation in out conditions will be of great importance and the present paper deals with the degradation of r-HCH in soils as influenced by BGA and certain organic amendments.

MATERIALS AND METHODS

Twenty gm of black soil taken in a 250 ml Erlenmeyer flask was flooded with 40 ml of distilled water to simulate the oxidised surface layer of a flooded soil as described by Gowda *et al* (1977). To the soil r-HCH was added @ 5 ppm and the treatments were replicated twice. BGA was added at 0.5 to 0.75 g wet weight and incubated at room temperature. The residues in the BGA, soil and water samples were analysed at weekly intervals following the method of Wood (1960). In another incubation study 20 gm black soil taken in test-tube was added with r-HCH @ ppm. The soil was flooded and amended with dried leaf litter, sewage sludge and dried parthenium plants and BGA at 0.5 per cent level and the residue level was analysed at weekly intervals.

RESULTS AND DISCUSSION

The distribution of applied r-HCH in the soil-water BGA system is given in Table-1. The level of r-HCH was 0.10and 0.15 ppm in soil and soil with BGA samples respectively as analysed soon after the application of r-HCH and the level gradually increased upto 0.85 and 0.70 ppm during the third week. The levels decreased slowly after third week. Water samples recorded 4.15 ppm of r-HCH initially and gradually reduced as the days elapsed and reached non-detectable level in ninth week while soil and soil and BGA samples had residues even after ten weeks.

It could be observed from these results that the applied r-HCH was distributed more in the water medium and the gradual but steady degradation dissipated the chemical to non-detectable level in 9 weeks. Though the initial residue level was low in soils the level increased as the r-HCH molecules from water got absorbed in soil colloids. Degradation of HCH in soil caused the level of residues to decrease after 3rd week. In the soil with BGA also, the initial residue was less and the level got increased due to the accumulation of r-HCH by BGA from the surrounding water. The decrease in the residue level after third week in the BGA might be due to the enzymic conversion of HCH IN BGA. in general, though degradation of HCH was observed in soil, and soil with BGA they had residues even after 70 days of incubation, which may be due to the inherent recalcitrant property of r-HCH molecules against degradation.

Table 1. Distribution and degradation of r-HCH in soil, water blue-green algae system.

Period	Residue of r-HCH (ppm)		
	Soil	Water	Soil with Blue-green algae
Initial (1 hr)	0.10	4.15	0.15
I week	0.35	3.56	0.52
II week	0.35	3.10	0.66
III week	0.85	2.64	0.70
IV week	0.70	2.15	0.60
V week	0.65	2.12	0.62
VI week	0.50	1.90	0.56
VII week	0.42	1.30	0.50
VIII week	0.36	0.70	0.42
IX week	0.20	0.10	0.35
X week	0.09	No	0.25

The degradation of r-HCH IN soil as influenced by certain organic amendments is given in Table-2. Of all the amendments sewage sludge was the most effective in helping the degradation of r-HCH. The abundant microflora present in the sewage sludge might have helped in the faster degradation of HCH. When applied to soil with BGA the r-HCH persisted in appreciable quantities even on 5th week. This might be due to the gradual accumulation of the insecticide in the BGA cells and this resisted degradation. Reghu and MacRae (1967) observed a selective stimulation of BGA by r-HCH in flooded soil. This shows the organism is tolerant to r-BHC and the

Table 2. Influence of blue green algae and certain organic amendments on the degradation of r-HCH.

	Treatments	r-HCH Residue (ppm) DAYS					
		0	7	14	21	28	35
1.	Soil + HCH	4.50	4.10	3.60	3.20	2.75	2.20
2.	Soil + HCH + BGA	4.45	4.40	4.10	4.10	3.40	3.39
3.	Soil + HCH + Sewage sludge 5% W/W	4.50	3.10	2.50	1.90	0.80	0.20
4.	Soil + HCH + dried leaf litter 1% W/W	4.40	3.90	3.30	2.75	2.20	1.90
5.	Soil + HCH + dried parthenium plants 17% W/W	4.60	3.80	3.20	2.75	2.40	2.10

accumulation of the insecticide in the cells of BGA results in longer persistence of the insecticide. Apart from sewage sludge other amendments also accelerated the degradation HCH. The results showed that the degradation was greatest in sewage sludge, closely followed by dried leaf litter and dried parthenium in descending order. The present investigation revealed that the degradation of r-HCH in the presence of BGA in soil-water system ws found to be very slow and the chemical persisted in considerable amount even after 70 days of application. However, when applied along with sewage sludge (used as an amendment) the degradation was faster.

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RICE PRODUCTIVITY IN TAMILNADU - AN ECONOMETRIC ANALYSIS.

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ABSTRACT

The present paper intends to study the rice output supply and factor inputs (labour, fertilizer and bullock) demand by using Unit-Output-Price profit function. In order to fulfill the objectives, 80 respondents were selected randomly. The study was conducted in Kaveripattinam block of Dharmapuri district, North- Western zone of Tamilnadu. It is lucid from the study that the rice supply responds to its own price but inelastically. Rice supply has inverse relationships with price of labour and bullock power and positive relation with price of fertilizers. Also, it is evidenced from the study that the own price elasticities of labour and bullock power are negative, support the neo-classical theory of demand. Hence, one could possibly to conclude that by suitable price policy, as a major instrument, rice productivity and factor absorbtion in agriculture could be increased.

Rice is the principal food for most of Indian population. After the introduction of green revolution, there has been a spectacular increase in the production of rice in the state. Since, rice is a staple food, the increase in rice production does not cope up with the increase in population growth. Also, there is a stable increase in demand for inputs, though it is a non-remunerative. Wide spread adoption of high yielding varieties has significant and positive influence on the application of inputs. However, the price of rice shows a stagnant trend. With this in view, the present study is aimed to study the supply response and input demand of rice in response to changing prices of rice and other key factor inputs.

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