Under conditions optimal for the incorporation of ^{14}C-leucine into wild-type mitochondria, mitochondria from cytoplasmic respiratory-deficient mutants did not incorporate detectable amounts of radioactivity.

The inability of isolated mitochondria from cytoplasmic respiratory-deficient mutants to incorporate ^{14}C-leucine into trichloroacetic acid-insoluble fraction under conditions where wild-type mitochondria were active could be most simply explained as a direct result of the mutation of mitochondrial DNA. Even though other possibilities, e.g. greater susceptibility of mutant mitochondria to damage or a loss of some auxiliary components during isolation have not been completely excluded, it seems to be very likely that mitochondria of cytoplasmic respiratory-deficient mutants lack the protein synthetizing activity in situ as well. The finding thus underscores the importance of the product of mitochondrial protein synthesis for structural and functional state of mitochondria[19].

Zusammenfassung. Die Mutation der mitochondrialen DNA, die in den atmungsdefekten Hefen resultiert, führt zu dem Verlust der Fähigkeit der isolierten Mutantenmitochondrien, ^{14}C-Leuzin in die TES-unlösbare Fraktion zu inkorporieren.

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Effect of Dichloro Diphenyl Trichloro-Ethane (DDT) on Leghemoglobin Content of Root Nodules of *Phaseolus aureus* (Green Gram)

Pesticidal chemicals in increasing quantities are finding their way into soil. Some pesticides are known for their long persistence in soil[1], being inhibitors of biological system of one sort they may also exert deleterious effect on soil microbial population and their activities which are of importance for soil fertility.

The formation of nodules on the roots of legumes is due to symbiosis between *Rhizobium* and the host plant. There are reports that there is a relationship between leghemoglobin content of nodules and nitrogen fixation[2–6]. This communication deals with the effect of DDT on the leghemoglobin content of root nodules of green gram plants (*Phaseolus aureus*).

Materials and methods. Different levels of the insecticides-0, 1, 5, 10, 40, 100 and 1000 ppm were mixed with an alluvial soil (2.5 kg each), sandy loam in nature, in pots. Organic carbon, total nitrogen and pH of the soil were 0.53, 0.053% and 7.8 respectively. Effect of organic matter was also studied in respect of reduction of toxicity of higher doses of the insecticide. Moisture was adjusted to $^1/_3$ of the water holding capacity of the soil; healthy seeds of the crop (variety Pusa basakhi, a short duration crop which matures in 75 days) were inoculated with 48 h old culture of specific *Rhizobium* and were sown. Plants were uprooted after 4 and 7 weeks of growth, nodules were separated, weighed and the leghemoglobin content was determined by Benzidine hydrogen peroxide method[7].

Results. The results (Table) showed that the insecticide up to 40 ppm was not toxic to the leghemoglobin content of the nodules of the crop. Moreover, DDT at the level of 1, 5 and 10 ppm increased the leghemoglobin content and the increases over control with the above concentrations were 12.2, 37.2 and 27.2% in the first and 59.7, 57.9 and 30.5% in the second uprooting respectively. With higher concentrations (100 and 1000 ppm) it could not be estimated due to the absence of root nodules, except in 100 ppm DDT+ organic matter treatment. It is worth noting that in the case of 100 ppm of the insecticide, 1% organic matter application to soil neutralized the toxic effect of the insecticide remarkably.

Effect of DDT on nodulation and leghemoglobin content of *Phaseolus aureus*

Level of DDT (ppm)	After 4 weeks of growth		After 7 weeks of growth	
	Wt. of nodules (g)	Leg-hemoglobin mg/g nodules	Wt. of nodules (g)	Leg-hemoglobin mg/g nodules
Control (0)	0.027	20.05	0.295	41.32
1	0.026	22.50	0.367	66.00
5	0.031	27.00	0.371	65.23
10	0.026	25.50	0.244	53.92
40	0.027	18.00	0.157	42.09
100	Nil	–	Nil	–
100 + 1% farm yard manure	0.017	15.25	0.056	39.66
1000	Nil	–	Nil	–
1000 + 1% farm yard manure	Nil	–	Nil	–
Significant C.D. at 5%	0.01		0.05	3.24

Zusammenfassung. Geringe Mengen von DDT im Boden fördern die Bildung von Wurzelknöllchen bei Leguminosen und erhöhen den Gehalt an «Leghämoglobin» in den Knöllchen.

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