

Monocrotophos was applied topically at 0.5 µl, using a Burkard microapplicator with calibrated microsyringe. Treated insects were transferred to rice panicles of plants enclosed in mylar cages. The test had 10 insects/treatment with 4 replications.

Cages were kept in the phytotron at 27-30 °C, 60-80% relative humidity, and 12 h illumination. Mortality was recorded 24 h after treatment. LD₅₀

values were computed using probit analysis.

The lowest LD₅₀ value (µg/g) was for adult females and the highest for the 4th instar (see table). Regardless of body weight, the adult was more sensitive than the 4th and 5th instar. Lower insecticide dosages will control adults; higher dosages may be needed to control nymphs. □

Susceptibility of brown planthopper (BPH) and green leafhopper (GLH) to insecticides under different temperatures

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When LD₅₀ values are compared between locations, prevailing temperature could cause inconsistent results. We subjected BPH and GLH to six different temperatures after topical insecticide application.

Serial dosages of 7 insecticides were prepared in acetone solution and 0.1 µl and applied on the thoracic tergites of anaesthetized BPH and 0.2 µl on those of GLH. Twenty treated adults were placed in a plastic tumbler, provided with 10 two-week-old seedlings for food,

and transferred in Koitotron cabinets set at constant temperatures of 18 °C to 33 °C with natural daylength. Insect mortality was recorded 24 h after treatment and LD₅₀ values were computed using probit analysis.

BPH and GLH were susceptible to most of the insecticides at higher temperatures and to the pyrethroids at lower temperatures (see table). For BPH, all insecticides except cypermethrin and deltamethrin had lower LD₅₀ values at 33 °C than at 18 °C (see table). For GLH, all insecticides except carbaryl and the two pyrethroids were more potent at higher temperatures. Insecticide activity was comparable at the temperature range 27-30 °C. Temperatures before, during, and after treatment should be recorded to control their possible effect on insecticide activity. □

LD₅₀ values of BPH brachypterous adult females and GLH adult females at 6 temperatures. ^a IRRI phytotron, 1987.

Temp (°C)	LD ₅₀ (µg/g) in 24 h						
	BPMC	Carbaryl	Carbofuran	Cypermethrin	Deltamethrin	Diazinon	Malathion
<i>BPH</i>							
18	4.68 a	4.12 a	1.19 a	0.24 a	0.40 a	12.13 a	37.43 a
21	2.59 b	4.64 a	0.85 ab	0.25 a	0.53 a	8.36 a	23.95 a
24	1.92 b	3.91 a	0.74 abc	0.29 a	0.46 a	8.46 a	27.02 a
27	1.30 b	3.78 a	0.37 bc	0.33 a	0.57 a	6.76 a	14.38 a
30	1.70 b	4.08 a	0.39 bc	0.42 a	0.55 a	7.05 a	13.95 a
33	0.61 b	1.67 b	0.21 c	0.39 a	0.59 a	4.92 a	9.08 a
<i>GLH</i>							
18	6.85 a	4.38 a	3.42 a	0.14 b	0.12 b	36.20 a	11.83 a
21	7.00 a	5.38 a	2.88 ab	0.21 ab	0.27 b	27.61 b	12.05 a
24	4.40 ab	4.54 a	2.03 bc	0.14 b	0.54 ab	23.78 b	12.25 a
27	3.49 b	5.62 a	1.61 bc	0.25 ab	0.75 a	19.04 b	9.62 ab
30	2.30 b	3.70 a	1.68 bc	0.58 a	0.75 a	19.10 b	9.31 ab
33	1.66 b	4.41 a	1.17 c	0.57 a	0.71 a	19.36 b	6.99 b

^a Av of 3 replications, 20 insects/replication. In a column within a species, means followed by a common letter are not significantly different at the 5% level by DMRT.

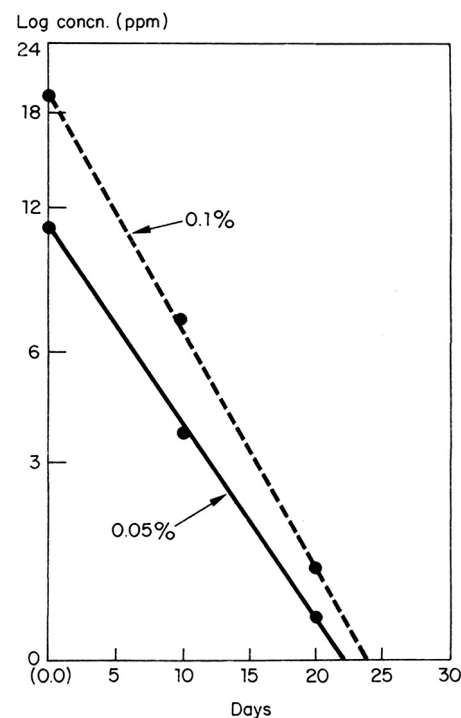
Residues of quinalphos in rice

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We studied residues of quinalphos (0, 0-diethyl-D-[2-quinoxaly] phosphorothionate), widely used insecticide, in rice variety Lalat (ORS26-2014). The pesticide was sprayed at the recommended level (0.05%, or 0.25 kg ai/ha) and double the recommended level (0.1%, or 0.50 kg ai/ha). Plant samples were collected at 0, 10, 20, and 30 d after spraying and at harvest.

The spectrophotometric method was used to estimate residues of quinalphos, using p-nitrobenzyl pyridine as the chromogenic reagent. Recovery of quinalphos from fortified plant samples was 86-87%.

Mean initial residues of 1.04 ppm (0.05%) and 18.86 ppm (0.1%) were reduced to 3.45 and 6.86 ppm 10 d after insecticide application, to 0.62 and 1.05 ppm 20 d after application, and to nondetectable levels 30 d after



Linear plot of first-order reaction of quinalphos in rice. Bhubaneswar, India.