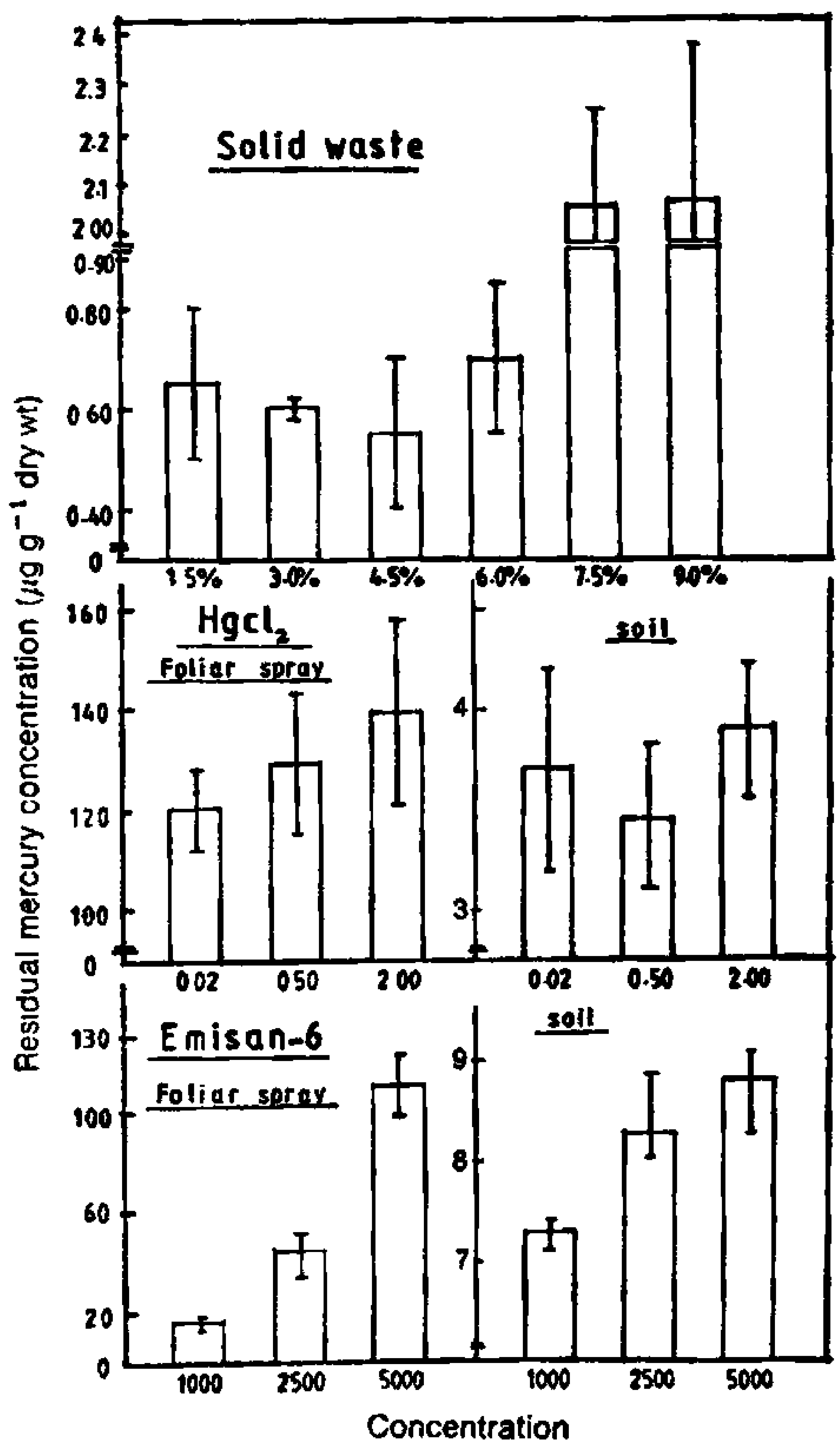

Figure 1. Residual mercury concentration (μg/g dry wt) in leaves of treated mulberry plants 30 days after application. Bars show mean of 10 samples; standard deviations are also shown.

larvae will be affected and the silk fibre may be very weak and of low quality.

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INHIBITION OF PHOTOSYNTHESIS IN LEAF DISCS BY HERBICIDES

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HERBICIDES are known to inhibit photosynthesis at metabolic sites[1]. Recently, work on photo-inhibition by herbicides at low concentrations on leaf discs has been described[2].

Developed leaves of rice (cv. IET-7633), maize (cv. VL-16), soybean (cv. Lee) and groundnut (cv. JL-24) were collected from field-grown plants grown with recommended levels of nutrients. Leaf discs (1 cm diameter) were treated overnight in different concentrations of simazine (0, 3, 6, 9 and 12 ppm), butachlor (0, 80, 160, 400 and 800 ppm) and glyphosate (0, 80, 160, 400 and 800 ppm). Photosynthesis inhibition was estimated on the basis of permanent submergence of leaf discs placed afloat in 0.05 M $NaHCO_3$ solution in light[2].

Photosynthesis inhibition by the herbicide simazine was more pronounced in soybean and groundnut leaf discs than in rice and maize (table 1). Fifty per cent inhibition was recorded in rice and maize at a concentration of 12 ppm. But at that concentration, the inhibition in soybean and groundnut was 70%. This is in agreement with the results of earlier workers[3,4]. Simazine effects are by inhibition of electron transport, and disorganization and rupture of the tonoplast and chloroplast envelope[5,6].

Table 1 *Per cent inhibition of photosynthesis by simazine, butachlor and glyphosate in rice, maize, soybean and groundnut leaf discs*

Herbicide	Concentration (ppm)	Rice (IET-7633)	Maize (VL-16)	Soybean (Lee)	Groundnut (JL-24)
Simazine	0	—	—	—	—
	3	—	25	33	—
	6	—	37	50	30
	9	20	45	60	60
	12	50	50	70	70
Butachlor	0	—	—	—	—
	80	20	35	20	20
	160	40	45	50	50
	400	70	50	70	60
	800	90	60	100	70
Glyphosate	0	—	—	—	—
	80	—	35	60	—
	160	30	45	70	—
	400	40	50	80	20
	800	60	60	100	60

Butachlor showed a decreasing order of inhibition in soybean, rice, groundnut and maize at higher concentrations. However, at 80 ppm the adverse effect was maximum in maize leaf disks. Similarly the total weed killer glyphosate showed the highest degree of inhibition in soybean (80%). Inhibition in these cases is mainly at the PS II system through uncoupling or inhibition of electron acceptance and transport mechanisms as well as inhibition of CO_2 uptake[4].

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GENETIC VARIATION AT ALCOHOL DEHYDROGENASE LOCUS IN SOME DROSOPHILIDS

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MEASURING the patterns and amounts of genic variation in natural populations of diverse organisms is the major thrust of experimental population genetics[1-3]. Allozymic (allelic isozyme) variations detected by gel electrophoresis have been used to assess the extent of genetic variability in species populations. Alcohol dehydrogenase (ADH, EC 1.1.1.1) constitutes an important gene–enzyme system in *Drosophila* because of its role in detoxification and/or utilization of alcohol in the natural habitat of the organism[4]. Several field and empirical studies have been made on ADH polymorphism in *D. melanogaster* but information about this enzyme in other drosophilids is scanty[5-7]. The present investigation was undertaken to examine the extent of electrophoretic variation of ADH in some drosophilids.

Individuals of species *D. melanogaster*, *D. takahashii*, *D. nepalensis*, *D. malerkotliana*, *D. bipectinata*, *D. ananassae*, *D. jambulina*, *D. punjabiensis*, *D. immigrans*, *D. busckii* and *Zaprionus indianus* were bait-trapped from Delhi, Rohtak, Pinjore, Jammu, Hasimara, Bagdogra and Dhulabari (Nepal). Labo-