Table 1. A record of Drosophila species collected in Biligirirangana Hills

Species	Altitude in feet 2526	2985	3016	3270	3498	3838	3894	3968	4000	4165	4493	Total
nasuta	54	39	51	-	18	39	180	201	75	135	101	893
brindavani	87	12	-	-	-	-	6	-	8	9	6	128
immigrans	-	-	-	-	-	3	6	-	24	99	189	321
melarkotliana	138	128	28	84	63	66	18	8	51	21	33	638
rajasekari	45	72	30	-	-	-	-	-	-	-	-	147
nigra	-	-	-	-	3	-	-	-	-	-	-	3
mysorensis	-	-	-	-	-	27	33	6	12	87	10	175
jambulina	-	-	-	-	9	-	-	-	-	-	-	9
varietas	-	-	-	-	-	-	-	-	-	10	26	36
* neotruncata	-	-	-	-	14	-	-	-	-	16	-	30
takahashii	-	42	-	-	3	-	-	-	-	-	-	45
Total	324	293	109	84	110	135	243	215	170	377	365	2415

* A new species (G. Sreerama Reddy and N.B. Krishnamurthy, unpublished)

Acknowledgements: Please see previous note.

Alexandrov, I.D. Research Institute of Medical Radiology, Academy of Medical Sciences of U.S.S.R., Obninsk, U.S.S.R.

Functional w^+ isoalles and genetic background.

Quantitative differences in the content of red eye pigments in heterozygous females for some w mutations had been used to distinguish w^+ isoalleles in D. melanogaster (DIS 46:72). However, the observed differences may be somewhat conditioned by the genotypic variability of heterozygous females. To test this possibility more carefully, w^{+C} and w^{+O} isoalleles (from Canton-S and Oregon-R lines, respectively) were placed in genetic backgrounds of w^{10gA} and w^{69gA} lines by a chromosome substitution procedure. For this purpose w^+/w^{10gA} females were backcrossed to w^{10gA} males for twelve generations (backcross A). The same procedure was applied also for the introduction of both isoalleles into the genetic background of w^{69gA} line (backcross B). The quantities of red eye pigments in FB females of each generation were estimated by a spectrophotometric method (see DIS loc. cit.). The results show that the significant difference in phenotypic action of w^{+C} and w^{+O} isoalleles remained during the substitution procedure in two different backgrounds. The data from FB_{10} heterozygous females are, as an example, listed in Table 1.

	Backcross A		Backcross B	
	w^{+C}/w^{10gA}	w^{+O}/w^{10gA}	w^{+C}/w^{69gA}	w^{+O}/w^{69gA}
E*	0.710	0.628	0.503	0.427
Conf. limits at $P_{0.05}$	0.730-0.690	0.650-0.606	0.531-0.475	0.436-0.418

*Means of three independent experiments

FB_{12} w^{+C}/w^{10gA} females were further crossed to w^{69gA} males from FB_{12} of backcross B. The reciprocal cross (FB_{12} w^{+C}/w^{69gA} ♀♀ x FB_{12} w^{10gA}/Y♂♂) was made. The same crosses for w^{+O} were carried out. Four types of heterozygous females (w^{+C}/w^{10gA}; w^{+C}/w^{69gA}; w^{+O}/w^{10gA}, and w^{+O}/w^{69gA}) with similar genetic backgrounds were obtained. The quantitative determinations of red eye pigments of these females were made. The results of analyses are listed in Table 2.

	w^{+C}/w^{10gA}	w^{+O}/w^{10gA}	w^{+C}/w^{69gA}	w^{+O}/w^{69gA}
E*	0.585	0.523	0.540	0.462
Conf. limits at $P_{0.05}$	0.603-0.567	0.531-0.515	0.557-0.523	0.482-0.440

*Means of three independent experiments

These data provide further evidence for w^+ isoalleles and locus-specific action of w mutations in D. melanogaster. Comparison of Tables 1 and 2 shows that the phenotypic action of isoalleles in question is somewhat influenced by the genetic background. This influence, however, is not sufficient to cancel out the differences in the action of the w^+ isoalleles themselves and of the w mutations studied.

Jenssen, D. and J. Ahlberg. University of Stockholm, Sweden. The effect of an electric field on somatic chromosomes in Drosophila melanogaster.

The present investigation was performed in order to study the effect of an electric field to somatic recombination and/or chromosome loss in larvae of Drosophila melanogaster. Previous observations on root tip cells of Allium have shown that the segregation of the chromosomes was disturbed by electric shocks.

The treatment was given to female larvae, heterozygous for yellow. The larvae were collected at random to all groups. The abdomen of hatched females was mounted on a slide in a drop of Euparal. The slides were coded and the bristles inspected under microscope. The size of the yellow spots was also recorded. In a preliminary test the females were also heterozygous for singed. As the classification of the singed character turned out to be unreliable, however, only the yellow character could be scored.

The electric treatment involved 250 volts, given to third instar larvae as a one second shock between two titan-electrodes in a bath of aq. dest. As a control that the larval age used was sensitive to the induction of somatic recombination and/or chromosome loss, one group of larvae received 1800r of X-ray at an intensity of 90r/min. A third group consisted of a control without any treatment.

In Fig. 1, the number of spots per fly is presented. The irradiated group (R) shows a significantly higher number of yellow spots than the control (C), indicating that the treated

Fig.1

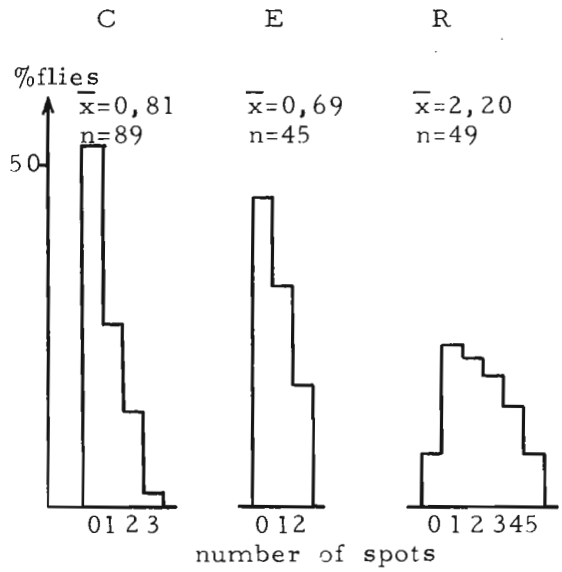
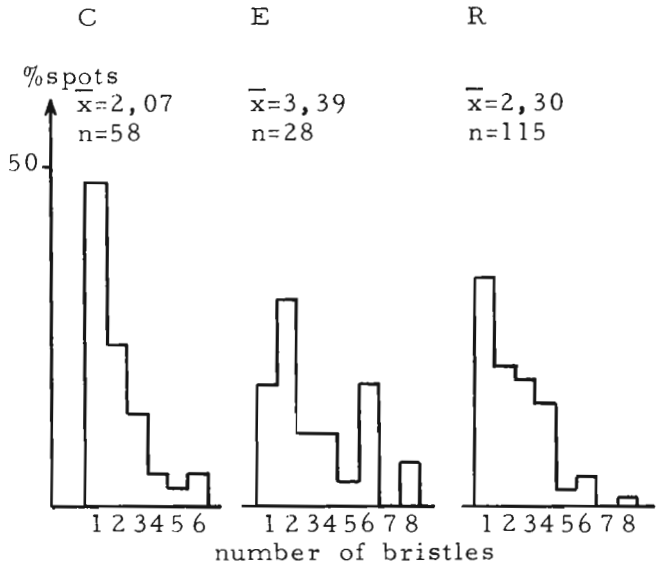


Fig.2



stage of the larvae was sensitive for induction of yellow spots. There is no difference between the control and the group receiving the electric shock (E).

An effect by the electric treatment is indicated, however, by the larger size of the yellow spots as compared to the control, as shown in Fig. 2, showing the number of bristles per yellow spot. The difference between groups C and E is highly significant both concerning the distribution ($X^2_5 = 22.4$, $P < 0.0005$) and the mean ($F_{1,84} = 11.7$, $P < 0.001$). A slight tendency in the same direction occurs for the irradiated group, the difference versus the control being at the border of significance ($P = 0.05$). Further investigations are being performed in order to reveal the biological significance of these observations.