Jacob, M. and S.P. Ray-Chaudhuri, Banaras Hindu University, Varanasi, India. Protective effect of glutathione (reduced) against X-ray induced sex-linked recessive lethals in D. melanogaster.

The thiol tripeptide, glutathione, was shown to be protective against radiation-induced lethality in mice (Chapman et al. 1950). This chemical yielded significant protection against chromosomal aberrations also, in Tradescantia (Mikaelsen 1952) and grasshopper (Chaudhuri 1965). But Mittler (1964) reported the failure of glutathione as well as a few other well-known chemicals to protect Drosophila chromosomes against X-ray induced sex-linked lethals, dominant lethals, translocations and deletions.

A number of experiments were conducted to test the protective effect of reduced glutathione against sex-linked recessive lethals using Oster's stock. One-day old males ($X^{c2}yB$)

Frequency of sex-linked recessive lethals after 2000 r and pretreatment with glutathione(reduced)=GSH

Experiment No.	Treatment	No. of sex linked lethals	No. of chromosomes tested	% of lethals	χ^2	Probability	Degree of protection
1	GSH + 2000r	41	770	5.3	4.1	$0.05>P>0.025$	35.3
	Saline+2000r	50	604	8.2			
2	GSH + 2000r	48	923	5.2	2.6	$0.25>P>0.10$	24.6
	Saline+2000r	76	1096	6.9			
3	GSH + 2000r	51	932	5.4	7.1	$0.01>P>0.005$	36.6
	Saline+2000r	147	1722	8.5			
4	GSH + 2000r	134	2729	4.9	5.3	$0.02>P>0.01$	28.9
	Saline+2000r	72	1037	6.9			
Total	GSH + 2000r	274	5354	5.1	24.9	$P>0.005$	33.7
	Saline+2000r	345	4456	7.7			

were pretreated with the chemical dissolved in saline to a concentration of 10 mM and each fly received 0.6 µl of the solution. The controls were treated with saline and both the lots received a dose of 2000 r X-ray after 30 minutes of the treatment. Crosses were made with these males and the virgins of the Oster ♀ stock. Nearly twenty pair-matings were made from the F_1 progeny of each treated male and the F_2 offspring were examined for the absence of Bar males, indicating the presence of a lethal induced in the paternal X-chromosome.

The consistent results of the four repeated experiments are presented in the table. Significant protection was observed in all the experiments, only one being slightly below the border line. The pooled data of all the experiments show a highly significant protection, $P(\chi^2)$ 0.005, the degree of protection being 33.7.

References: Chapman, W.H., C.R. Sipe, D.C. Eltzholtz, E.P. Cronkite and F.W. Chambers 1950, Radiology 55: 865; Chaudhuri, J.P., 1965, Ph.D. Thesis, Banaras Hindu University; Mikaelsen, K., 1952, Science 116 (3007): 172-174; Mittler, S., 1964, Int. J. Rad. Biol. 6 (5): 405-413.

Lee, T.J. Chungang University, Seoul, Korea. Frequency of races in males of D. auraria in natural populations.

D. auraria is a polymorphic species in Korea populations. This species was divided into three races, A, B and C, mainly by forms of genitalia. In natural populations of Korea, the distribution area of races A and C is much wider than race B. In general, race A is the most domestic of the three, abundant around areas of human habitation, while race B inhabits rather cool, and mountainous or relatively northern regions. The habitat of race C is, in general, wider in environmental and higher altitude than that of race A. However, it is sometimes found that the two or three races live sympathetically.

Among the flies collected in twelve localities, a few flies of D. auraria showed a

hybrid character in male phallic organs. The shapes in the phallic organs found in these males seems to be the same as those found in experimental hybrids obtained in the laboratory. However, no natural AB hybrid has yet been detected.

Races		A	B	C	AC	BC	Total
Is. Quelpart	No.	11		58	2		71
	%	15.4		81.6	2.8		
Mt. Chiri	No.	41		35	6		82
	%	50.0		42.6	7.3		
Mt. Kaya	No.	33	13	41	4	2	93
	%	35.4	13.9	44.	4.3	2.2	
Muju	No.	75		13	2		90
	%	83.3		14.4	2.2		
Mt. Palkong	No.	15		48	7		70
	%	21.4		68.5	10.0		
Mt. Kyeryong	No.	58		25	5		88
	%	65.9		28.4	5.6		
Kongju	No.	75		7	3		85
	%	88.2		8.2	3.5		
Mt. Sokli	No.	75	20	26	3	2	126
	%	59.5	15.9	20.6	2.3	1.6	
Daekwanryong	No.	19	30	53	4	2	108
	%	17.5	27.7	49.0	3.7	1.8	
Kwangneung	No.	40	32	22	3	1	98
	%	40.8	32.6	22.2	3.1	1.0	
Mt. Soyo	No.	17		22	7		46
	%	36.9		47.8	15.		
Mt. Sulak	No.	20	39	25	2	2	88
	%	22.7	44.3 c	28.4	2.7	2.7	

The sexual isolating mechanisms among the three races were analyzed. The mean coefficient of interracial sexual isolation in the three classes are arranged in descending order, A ⟷ B (0.845) > B ⟷ C (0.600) > A ⟷ C (0.426) at 25°C, and A ⟷ B (0.788) > B ⟷ C (0.417) > A ⟷ C (0.165) at 19°C.

In crosses between A and B, a highly significant sexual isolation was demonstrated at both temperatures of 19°C and 25°C.

It is conjectured that races A and B, in natural populations, have been completely precluded genetically from one another by many isolating mechanisms.

References: Kurokawa, H. 1960. Japan J. Genet., 35:161-166; Kurokawa, H. 1967. Annot. Zool. Japan., 40:154-160; Lee, T.J. 1970. Chungang Univ. Theses Collection, 15: 239-258.

PERSONAL AND LABORATORY NEWS

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