The disagreement between the observed and the expected distributions is very significant ($P<0.001$). It is mainly due to an excess of homozygous genotypes. This situation is difficult to explain; one possibility is that the sample is, for instance, a mixture of different populations. However the presence of non-random mating cannot be excluded.

References: Wright, R.F. and R.J. MacIntyre, 1963 A homologous gene-enzyme system, Esterase 6, in Drosophila melanogaster and D. simulans. Genetics 48: 1717-1726.

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Spontaneous changes on second chromosome of Drosophila melanogaster.

A previously localized stock (six years ago by our curator of stocks) which exhibits curvature of wings (Cy), bright red eye color (cn) and a recessive lethal gene on the second chromosome, has been recently relocated.

Virgin females from this stock were crossed with brown males. In the F_1, brown and Curly flies with the ratio of 50-50 appeared. The F_1 was divided into three lines:

First line: F_1 brown females backcrossed with their mothertype flies; in the F_2 Curly-cinnabar, Curly, brown and white eye flies appeared.

Second line: F_1 Curly females backcrossed with their mothertype flies. The offspring of the F_2 were Curly, Curly-cinnabar and brown.

Third line: F_1 Curly females produced wild type and Curly-cinnabar when crossed with the cinnabar (Tehran) pure stock.

Genotypical properties: The existence of a deficiency on the right arm of the second chromosome causes the appearance of brown phenotype in the main cross (Table 1).

Table 1

females	males	F_1 genotypes	F_1 phenotypes
Cy cn +/+ cn Df	bw/bw	Cy cn +/+ + bw + cn Df/+ + bw	Curly wings brown eye color

By the cross of the first line we demonstrated that crossing over occurred in the + cn Df/ + + bw genotype (Table 2).

Table 2

females	males	F_1 genotypes non C.O.	F_1 genotypes C.O.
+ cn Df/+ + bw	Cy cn +/+ cn Df	+ cn Df/Cy cn + cn Df/cn Df* + + bw/Cy cn + + bw/cn Df	+ + Df/Cy cn + + Df/cn Df* + cn bw/Cy cn + cn bw/cn Df

* lethal

By other crosses, when + bw/cn Df x + bw/cn Df produces brown flies and when a crossing-over occurs, we obtain flies with white eyes which have the genotype cn bw/cn Df. All of the white eyed females are sterile but such males show normal fertility.

The results of the second line indicate that no crossing over takes place in the right arm of the second chromosome with the Cy cn +/+ + bw genotype, and in crosses such as Cy cn +/ + + bw x Cy cn +/+ + bw only brown and Curly individuals appear as the offspring (Table 3).

Table 3

parents	offspring	
Cy cn +/+ + bw	2	Cy cn +/+ + bw
	1	+ + bw/+ + bw
	1	Cy cn +/Cy cn +*

* lethal

The cross of the third line demonstrates that the genotype of the flies is Cy cn +/+ + bw.

By a comparison of the given data, we conclude that there is a suppressor of crossing over on the right arm of the second chromosome. Therefore final genotype of the stock would be Cy cn C +/+cn + Df(2R)59D2-5;59E1-3.

The cultures were kept at $24^{\circ}\pm1$ C under constant light on Mostashfi medium.

References: Koliantz, G., 1968 The frequency of spontaneous visible mutations in Iranian natural populations of D. melanogaster; Lindsley, D.L. and E.H. Grell, 1968 Genetic Variations of Drosophila melanogaster.