Kosuda, K. Josai University, Sakado, Saitama, Japan. Mating activity of aged males in **Drosophila melanogaster.**

A body of evidence is accumulating that the male reproductive component of fitness, virility at young age, plays a more important role than fitness variables in preadult stages and female fertility (Petit et al. 1980; Brittnacher 1981; Sharp 1982, Kosuda 1983). Since mating activity of the aged individuals which have passed through the reproductive period is considered not to be subjected to natural selection, it is expected that the genetic variability in mating activity is much higher in aged individuals than in young ones. Mating activity of aged males (28 days old) in **Drosophila melanogaster** was measured under no competition among males for females in 29 lines homozygous for the second chromosome which were extracted from a natural population in Katsunuma, Japan. Males were individually placed into a mating vial together with 12 virgin females of a standard laboratory strain. After 24 hr, 10 out of 12 females were randomly chosen for sperm inspection. Twelve replicates each were made for 29 homozygous lines. Mating activity of heterozygotes was also measured utilizing progenies from the natural population.

Mating activity of aged males over the array of 29 lines was 1.85±0.25. Three lines exhibited sterility due to aging. All males from these lines are consistently sterile, although they are sexually active when they are young (Kosuda 1983). Analysis of variance disclosed the significant difference between lines, indicative of the genetic nature of the trait (Table 1). The frequency distribution of mating activity for homozygous aged males significantly differs from a Poisson distribution (Figure 1). The males exhibiting high mating activity were more frequent than that expected from a Poisson distribution. The fact implies that some aged males do not lose their mating activity by aging, although there is a general tendency that male mating activity decreases with increasing age (Stromnaes & Kvelland 1962).

Table 1. Analysis of variance for mating activity of the aged males among 29 homozygous lines.

Source	d.f.	S.S.	M.M.	F
Line	28	618.51	22.09	6.40*
Error	319	1099.02	3.45	
Total	347	1717.53		

* significant at 1% level.

The frequency distribution of heterozygous males was also given in Figure 2. Whereas the proportion of non-mating males in heterozygous ones was about 10% (20/201), about half of the homozygotes did not mate at all (153/348). None of the aged homozygous males mated more than 9 times, while 8 out of 201 heterozygotes did. The mean mating activity of aged heterozygotes was calculated to be 3.76±0.17. The difference in male mating activity between homozygotes and heterozygotes was statistically significant (P<0.001).

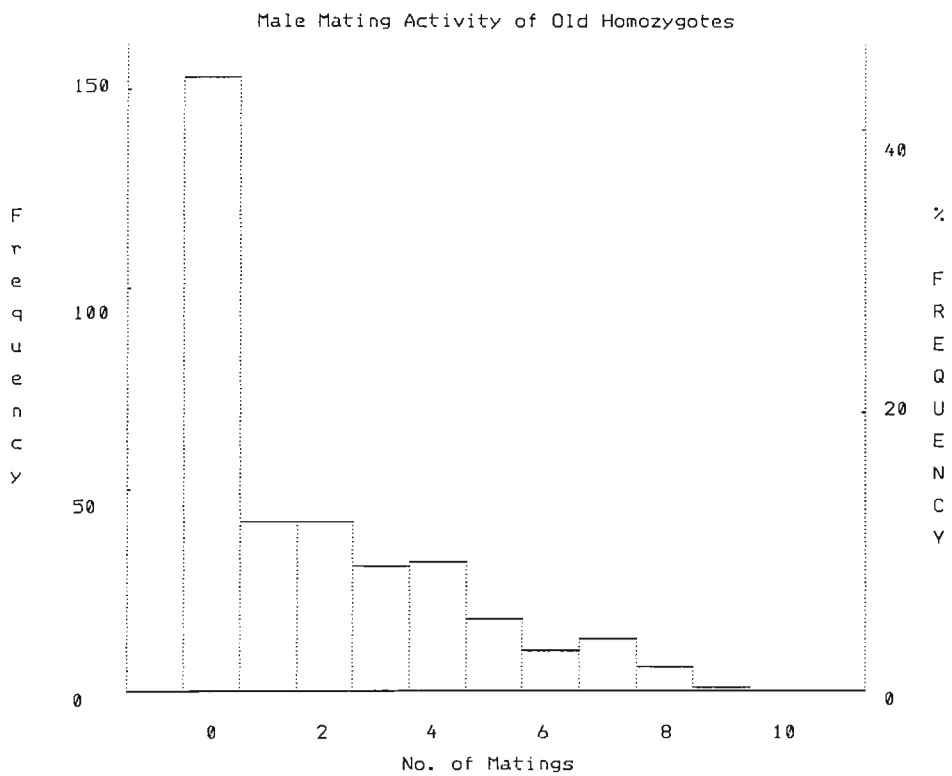

Figure 1. Frequency distribution of mating activity for homozygous males.

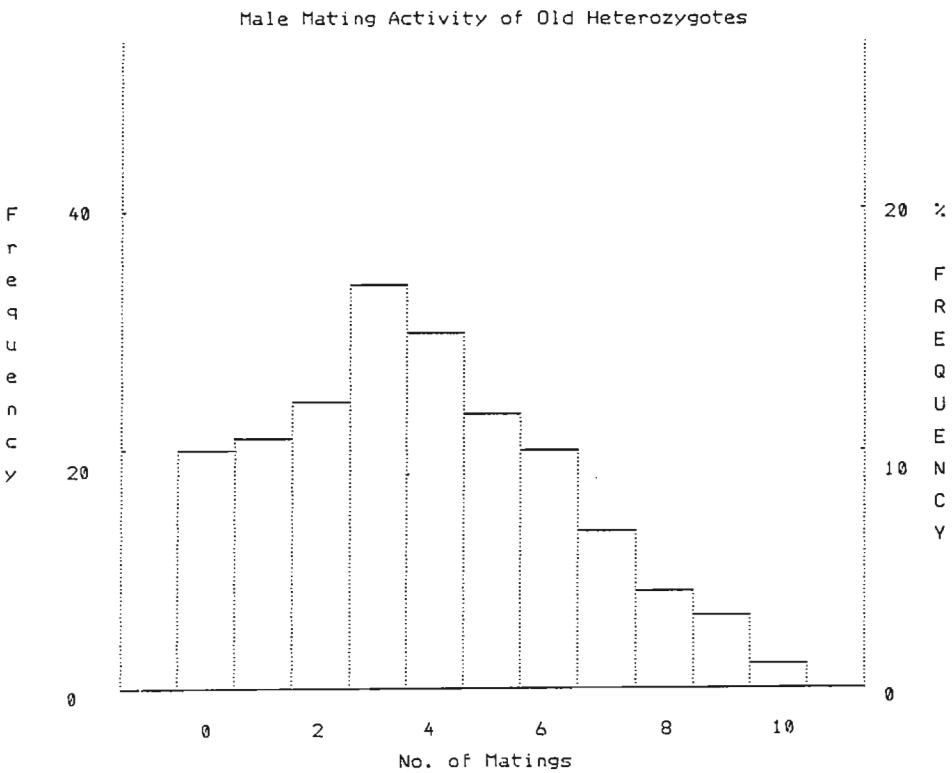

Figure 2. Frequency distribution of mating activity for heterozygous males.

References: Petit, C., P. Bourgeron & H. Mercot 1980, Heredity 45:281-292; Brittnacher, J.C. 1981, Genetics 97:719-730; Sharp, P.M. 1982, Genet. Res. 40:201-205; Kosuda, K. 1983, Experientia 39:100-101; Stromnaes, O. & I. Kvelland 1962, Hereditas 48:442-470.

Kumar, A. and J.P. Gupta. Banaras Hindu University, Varanasi, India. Further records of Drosophilid species from north-east India.

Table 1. Drosophilid species collected from different areas in Meghalaya and Arunachal Pradesh during September-October 1983.

Name of species	Subgenus	Locality	Number ♂♂/♀♀
Z.obscuricornis	Aprionus	Shillong & Tai	103
Z.multistriatus	"	Shillong	61
Liodrosophila penispinosa	"	Shillong & New Itanagar	9
D.rhopaloa	Sophophora	Tai	
D.sp.Nov.	"	"	9
D.ficusphila	"	"	6
D.bryani	Scaptodrosophila	"	88
D.sp.Nov.	Drosophila	Shillong	2
D.sp.Nov.	"	Tai	21
D.sp.Nov.	"	"	15
D.sp.Nov.	"	"	10
D.neoimmigrans	"	"	5
D.lacertosa	"	Shillong	31
D.tongpua	"	Tai	22
D.siamana	"	"	60
D.synpanishi	"	"	32
D.sternopleuralis	"	"	3
D.setitarsa	"	"	9
TOTAL			492

Recent surveying studies in different parts of north-east India (Singh & Gupta 1977; Gupta & Singh 1979; Dwivedi & Gupta 1979, 1980; Dwivedi et al. 1979; Singh & Gupta 1981) have indicated that this region possesses a fairly rich, and at present little known fauna of Drosophila and related genera of Drosophilidae. During the present study, intensive field collections were carried out in several previously unexplored areas in Meghalaya and Arunachal Pradesh. Altogether 18 species were collected as shown in Table 1. Among them, 5 species are detected as new to science, while 4 other species namely **D.tongpua, D.siamana, D.synpanishi, D.sternopleuralis** are recorded for the first time from India. An interesting feature of the collection data is that out of the total 18 species, 11 species are found to belong to the immigrans group of the subgenus Drosophila alone, indicating that resources are better utilized in this region by these species than the species of other genera of Drosophilidae.

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References: Dwivedi, Y.N. & J.P. Gupta 1979, Entomon 4:183-187; _____ 1980, Proc. Ind. Acad. Sci. 89:85-89; Dwivedi, B.K. Singh & J.P. Gupta 1979, Oriental Insects 13(1-2):61-74; Gupta, J.P. & B.K. Singh 1979, Entomon 4(2):167-172; Singh, B.K. & J.P. Gupta 1977, Ent. Mont. Mag. 113:71-78; _____ 1981, Stud. Nat. Sci. 2(13):1-8.