Table 2. Number of αGpdh$^{90/90}$ and αGpdh$^{90/100}$ genotypes in sterile an fertile cultures after substitution of genetic background.

	Males		Females	
	90/90	90/100	90/90	90/100
sterile cultures	41	6	25	22
fertile cultures	--	62	32	30
	41	68	57	52
	X^2=86.7	df=1	X^2=0.03	df=1
	p<0.001		n.s.	

Table 3. Single pair mating: number of females inseminated by αGpdh$^{90/90}$ and αGpdh$^{90/100}$ males after 72 hours.

αGpdh genotype of male	Females inseminated	Females not inseminated
90/90	--	21
90/100	18	3

X^2=31.5 df=1 p<0.001

independent of the sex. This lower viability of about 30% compared to the heterozygotes could be due to detrimental alleles of other genes on the same chromosome. In the second experiment viability of the 90/90-homozygotes was reduced only in males (X^2=6.7; df=1; p<0.01) but not as much as in the first experiment (60% compared to the heterozygotes). Thus the substitution of the genetic background uncoupled the αGpdh^{90} allele for the most part from the viability-reducing genes but not from the gene (or genes) responsible for sterility. This means that sterility is caused either by a closely linked locus or by the αGpdh^{90} allele itself. The latter explanation gave rise to the speculation that the sterile males are not able to copulate. The enzyme αGpdh is found in high concentration, especially in the flight muscles, and flies mutationally deficient for αGpdh are known to be restricted in their ability to fly. Since males use their wings during courtship, an effect of the αGpdh mutant on this behavior seemed at least possible. Direct observation, however, revealed that 90/90-males are not handicapped in copulation. To prove whether these copulations result in insemination, the females were dissected and the receptacula and spermatheca investigated for the presence of sperm. The result of an experiment where single pairs had been set up in small vials for 72 hours is shown in Table 3. It can be seen that none of those females paired with 90/90-males contained sperm. The testes of 90/90-males were therefore also examined. Since sperm were present, it can be concluded that the sterility factor prevents the transfer of sperm to the storage organs of the females. It remains an open question whether this inhibition of insemination is caused by the disturbed action of the mutated αGpdh. Assuming that the αGpdh locus is directly involved, it seems possible that the mobility of the spermatozoa might be affected in homozygotes for the αGpdh^{90} allele.

Prakash, H.S. and Sreerama Reddy, G. University of Mysore, India. Distribution of different species of Drosophila in Agumbe (Western Ghats), South India.

The Indian subcontinent with its variable geographic features offers a rich abode for the colonization of Drosophila species. However, sustained efforts are essential to survey and take census of various species and their densities to get an insight into the taxonomy and distributional pattern of the genus Drosophila. Western Ghats, a mountainous terrain extending along the western border of penninsular India, is one such unexplored territory. The climatic and physiographic features and its luxuriant flora provide a large number of breeding sites for Drosophila species. Agumbe, a part of Western Ghats, is one such natural environment situated at an altitude of 826 m, with an average annual rainfall of 8275.7 mm. It is called "Chirapunji" of South India due to its highest annual rainfall. A characteristic feature of rainfall at Agumbe is that all of it is received from a southwest monsoon from July to October. The northwest monsoon has no effect on it. The heavy rainfall has contributed to the growth of thick timber forest with bushy vegetation underneath, and thus provides congenial habitat for Drosophila species.

Drosophila collections made by conventional fermenting banana bait technique at five sites in this locality during July 1977 yielded a total of 1170 specimens comprising 12 species representing three subgenera (Table 1). Eight of these - D. eugracilis, D. malerkotliana, D.

Table 1. Distribution of different species of Drosophila in Agumbe (Western Ghats), South India.

Sites:	1	2	3	4	5	Total
Subgenus: Sophophora						
D. eugracilis	21	17	4	26	12	80
D. malerkotliana	69	27	53	85	105	339
D. pseudoananassae	9	-	-	8	11	28
D. bipectinata	28	15	-	18	21	82
D. anomelani	35	22	29	41	13	140
D. agumbensis*	-	10	8	-	15	33
D. montium	-	3	18	13	22	56
D. rhopaloa**	15	4	-	21	3	43
Subgenus: Drosophila						
D. nasuta	75	65	33	48	57	278
D. neonasuta	18	11	9	14	16	68
D. grandis**	2	-	-	-	-	2
Subgenus: Scaptodrosophila						
D. mundagenesis	5	3	8	1	4	21
Total	277	177	162	275	279	1170
No. of species	10	10	8	10	11	

*New species described by the authors
**Reporting for the first time from India

pseudoananassae, D. bipectinata, D. anomelani, D. agumbensis, D. montium and D. rhopaloa (melanogaster species group) - belong to subgenus Sophophora; four species - D. nasuta, D. neonasuta, D. immigrans (immigrans species group) and D. grandis - belong to subgenus Drosophila; and only one species - D. mundagenesis - belongs to subgenus Scaptodrosophila. 33 flies of a new species, D. agumbensis (Prakash and Reddy 1978b), 43 flies of D. rhopaloa and 2 flies of D. grandis were collected for the first time in this locality and are new additions to the Indian Drosophila fauna. Among the species collected, only three (D. malerkotliana, D. anomelani and D. nasuta) were found in large numbers in almost all the sites, indicating the occurrence of favorable habitats for the colonization of these species, while the other species were found to be present in small numbers only in some sites. Differences in regard to the number and composition of Drosophila species between sites can be correlated not only with ecological attributes of the species but also with the colonizing or invastive abilities of the species concerned. It is clear from the collection data that the members of the melanogaster species group in particular are dominant, as evidenced not only by their large numbers but also in the variety of species. The members of the immigrans species group occupy the next place. These findings are in conformity with the earlier reports of Reddy and Krishnamurthy (1974) and Prakash and Reddy (1978b), and corroborate the suggestion of Bock and Wheeler (1972), who regarded the Indian subcontinent as the general area for the origin of melanogaster species group, and southeast Asia in general for the origin and wide speciation of both melanogaster and immigrans species groups.

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Effect of proximal X-chromosome deletions on male fertility.

It was claimed by Lifschyts and Lindsley (1972) that deficiencies that included both su(f) and bb are male sterile, whereas deficiency for either su(f) or bb alone are male fertile. Later Schalet and Lefevre (1973) observed that many of the deficiencies for both su(f) and bb they have tested are male fertile when covered by the long duplication $y^{+}mal^{+}$.