

summer when large numbers of mushrooms were evident throughout the woods. For *D. affinis*-- which has a population flush much earlier in the year--the regression of abundance on time was in fact negative in sign, but not significantly different from zero.

Thus, extensive trapping has failed to reduce population size of *D. affinis* significantly despite the fact that flies were probably not immigrating in numbers large enough to replace the trapped individuals. Apparently, replacements are abundantly available from within the small isolated woodlot.

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References: Dobzhansky, Th. and S. Wright 1943, *Genetics* 28:304-340; Johnston, S. and W.B. Heed 1975, *Am. Nat.* 109:207-216.

Gupta, J.P. Banaras Hindu University, Varanasi, India. A list of drosophilid species so far known from India.

There has always been a conspicuous gap in our knowledge of world distribution of *Drosophila* where India is concerned. Although a beginning of such study in the subcontinent of India was made as early as 1920, only about a decade ago

have workers shown renewed interest in such study. During these years several collections undertaken by various workers in different parts of the country have yielded considerable data on Indian species. Recently our extensive surveys in different localities of northeast India have uncovered several interesting new species inhabiting this region. A few of them have already been published; manuscripts for those remaining are in preparation and have also been included in this list. In this report an attempt is made to include all species so far described and recorded from India. However, the final picture of the Indian drosophilid species seems to be far from complete. There are undoubtedly more species awaiting discovery.

Genus <i>Amiota</i> Loew	1. <i>shillongensis</i>	Singh & Gupta (in press)
Genus <i>Cacoxenus</i> Loew	2. <i>punctatus</i>	Duda 1924, Syn. of <i>Gitonides perspicax</i> Knab 1914. Ref. McAlpine 1968, <i>Canad. Entomol.</i> 100(5):514.
Genus <i>Chymomyza</i> Czerny	3. <i>vaidyai</i>	Okada 1976, <i>Nom. nov.</i> for <i>Chymomyza pararufithorax</i> Vaidya & Godbole 1973, DIS 50:71.
Genus <i>Curtonotum</i> Macquart	4. <i>neoangustipennis</i>	Dwivedi & Gupta (in press)
Genus <i>Gitonides</i> Knab	5. <i>perspicax</i>	Knab 1914
Genus <i>Hypselythrea</i> de Meijere	6. <i>guttata</i>	Duda 1926
Genus <i>Leucophenga</i> Mik	7. <i>varanasiensis</i>	Gupta 1974
	8. <i>albicineta</i>	(de Meijere 1908)
	9. <i>flavicosta</i>	Duda 1926
	10. <i>guttiventris</i>	(de Meijere 1911)
	11. <i>interrupta</i>	Duda 1924
	12. <i>neoangusta</i>	Vaidya & Godbole 1976
	13. <i>shillongensis</i>	Dwivedi & Gupta (in press)
	14. <i>subpollinosa</i>	(de Meijere 1914)
Genus <i>Liodrosophila</i> Duda	15. <i>angulata</i>	Dwivedi & Gupta (in press)
	16. <i>okadai</i>	Dwivedi & Gupta (in press)
	17. <i>penispinosa</i>	Dwivedi & Gupta (in press)
	18. <i>rufa</i>	Okada 1974
Genus <i>Lissocephala</i> Malloch	19. <i>metallescens</i>	(de Meijere 1914)
	20. <i>sabroskyi</i>	Wheeler & Takada 1964
Genus <i>Microdrosophila</i> Malloch	21. <i>purpurata</i>	Okada 1956
Genus <i>Mycodrosophila</i> Oldenberg	22. <i>gratiosa</i>	(de Meijere 1911)
Genus <i>Paraleucophenga</i> Hendel	23. <i>invicta</i>	(Walker 1857)
Genus <i>Scaptomyza</i> Hardy	24. <i>cristata</i>	Singh 1976
	25. <i>graminum</i>	(Fallén 1823)
	26. <i>pallida</i>	(Zetterstedt 1847)
	27. <i>plumata</i>	Singh 1976

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| Genus <i>Sinophthalmus</i> Coquillett | 28. <i>creberii</i> | Singh 1976 |
| Syn. of subgenus <i>Erima</i> Kertész of genus <i>Amiota</i> Loew. | 29. <i>pictus</i> | Coquillett 1904 |
| Ref. Okada 1971, Kontyû 39:83. | | |
| Genus <i>Stegana</i> Meigen | 30. <i>subexcavata</i> | Vaidya & Godbole 1976 |
| Genus <i>Zaprionus</i> Coquillett | 31. <i>indiana</i> | Gupta 1970 |
| | 32. <i>multistriata</i> | Sturtevant 1927 |
| | 33. <i>paravittiger</i> | Godbole & Vaidya 1972 |
| | 34. <i>striata</i> | Nirmala Sajjan & Krishnamurthy 1975 |
| Genus <i>Drosophila</i> Fallén | 35. <i>albomicans</i> | Duda 1924 |
| | 36. <i>ananassae</i> | Doleschall 1858 |
| | 37. <i>andamanensis</i> | Gupta & Ray-Chaudhuri 1970 |
| | 38. <i>andamanensis</i> | Parshad & Singh 1971. Syn. of <i>D. andamanensis</i> Gupta & Ray-Chaudhuri 1970. Ref. Gupta 1980, DIS 55. |
| | 39. <i>annulipes</i> | Duda 1924 |
| | 40. <i>anomelani</i> | Reddy & Krishnamurthy 1973 |
| | 41. <i>bambuphila</i> | Gupta 1971 |
| | 42. <i>birarmipes</i> | Malloch 1924 |
| | 43. <i>bicolovittata</i> | Singh 1974 |
| | 44. <i>bifasciata</i> | Pomini 1940 |
| | 45. <i>bipectinata</i> | Duda 1923 |
| | 46. <i>brachynephros</i> | Okada 1956 |
| | 47. <i>brevis</i> | Parshad & Singh 1971; Homonym |
| | *48. <i>brindavani</i> | |
| | 49. <i>brunettii</i> | Ray-Chaudhuri & Mukherjee 1941 |
| | 50. <i>bryani</i> | Malloch 1934 |
| | 51. <i>busckii</i> | Coquillett 1901 |
| | 52. <i>chamundiensis</i> | Nirmala Sajjan & Krishnamurthy 1975 |
| | 53. <i>chandrprabhiana</i> | Gupta & Ray-Chaudhuri 1970 |
| | *54. <i>charmadiensis</i> | |
| | 55. <i>coei</i> | Okada 1966 |
| | 56. <i>confusa</i> | Staeger 1844 |
| | 57. <i>coonorensis</i> | Reddy & Krishnamurthy 1973 |
| | 58. <i>coracina</i> | Kikkawa & Peng 1938 |
| | 59. <i>curviceps</i> | Okada & Kurokawa 1957 |
| | 60. <i>daruma</i> | Okada 1956 |
| | 61. <i>ebonata</i> | Parshad & Duggal 1966 |
| | 62. <i>emulata</i> | Ray-Chaudhuri & Mukherjee 1941. Syn. of <i>D. melanogaster</i> Meigen 1830. Ref. Parshad, Narda & Paika 1964. |
| | 63. <i>epiobscura</i> | Parshad & Duggal 1966 |
| | 64. <i>eugracilis</i> | Bock & Wheeler 1972. Nom. nov. for <i>D. (Tanygastrella) gracilis</i> Duda 1926, not <i>gracilis</i> Walker 1853. |
| | 65. <i>ficuspshila</i> | Kikkawa & Peng 1938 |
| | 66. <i>fusciostata</i> | Okada 1966 |
| | 67. <i>giriensis</i> | Prakash & Reddy 1977 |
| | 68. <i>gundensis</i> | Prakash & Reddy 1977 |
| | 69. <i>guptai</i> | Dwivedi (in press) |
| | 70. <i>helvetica</i> | Burla 1948 |
| | 71. <i>hoozani</i> | Duda 1923 |
| | 72. <i>hypocausta</i> | Osten Sacken 1882 |
| | 73. <i>immacularis</i> | Okada 1966 |
| | 74. <i>immigrans</i> | Sturtevant 1921 |
| | 75. <i>jambulina</i> | Parshad & Paika 1964 (identified in error as <i>seguyi</i> Smart in Gupta & Ray-Chaudhuri 1970c:59). |
| | 76. <i>kikkawai</i> | Burla 1954 |
| | 77. <i>krishnamurthyi</i> | Nirmala Sajjan & Reddy 1975 |

Genus *Drosophila* Fallén
(continued)

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| 78. <i>kurseongensis</i> | Gupta & Singh 1977 |
| 79. <i>lacertosa</i> | Okada 1956 |
| 80. <i>latifshahi</i> | Gupta & Ray-Chaudhuri 1970 |
| 81. <i>lucipennis</i> | Lin 1972 |
| 82. <i>malerkotliana</i> | Parshad & Paika 1964 |
| 83. <i>maryensis</i> | sp. nov. |
| 84. <i>mediobandes</i> | sp. nov. |
| 85. <i>meijerei</i> | Wheeler 1959 |
| *86. <i>meijerei indicus</i> | |
| 87. <i>melanogaster</i> | Meigen 1830 |
| 88. <i>mercatorum</i> | |
| <i>pararepleta</i> | Dobzhansky & Pavan 1943 |
| 89. <i>minima</i> | Okada 1966 |
| 90. <i>montium</i> | de Meijere 1916 |
| 91. <i>multispina</i> | Okada 1956 |
| 92. <i>mundagensis</i> | Nirmala Sajjan & Reddy 1975 |
| 93. <i>mysorensis</i> | Reddy & Krishnamurthy 1970 |
| 94. <i>nasuta</i> | Lamb 1914 |
| 95. <i>neoelegans</i> | Gupta & Singh 1977 |
| 96. <i>neokuntzei</i> | Singh & Gupta (in press) |
| 97. <i>neonasuta</i> | Nirmala Sajjan & Krishnamurthy 1973 |
| *98. <i>neotruncata</i> | |
| 99. <i>nepalensis</i> | Okada 1955 |
| 100. <i>notostriata</i> | Okada 1966 |
| 101. <i>novaspinofera</i> | Gupta & Singh (in press) |
| 102. <i>novazonata</i> | sp. nov. |
| 103. <i>obscuricornis</i> | (de Meijere 1915) |
| 104. <i>orissaensis</i> | Gupta 1972 |
| 105. <i>parabipectinata</i> | Gupta & Ray-Chaudhuri 1970 |
| 107. <i>parazonata</i> | sp. nov. |
| 108. <i>penidentata</i> | Singh & Gupta (in press) |
| 109. <i>penispina</i> | Gupta & Singh (in press) |
| 110. <i>pentaspina</i> | Parshad & Duggal 1966 |
| 111. <i>pentavittata</i> | Gupta & Ray-Chaudhuri 1970 |
| 112. <i>prashadi</i> | Brunetti 1923 |
| 113. <i>prolongata</i> | Singh & Gupta (in press) |
| 114. <i>prostipennis</i> | Lin 1972 |
| 115. <i>pulchrella</i> | Tan, Hsu & Sheng 1949 |
| 116. <i>punjabiensis</i> | Parshad & Paika 1964 |
| 117. <i>pseudoananassae</i> | Bock 1971 |
| 118. <i>quadrilineata</i> | (de Meijere 1911) |
| 119. <i>rajasekari</i> | Reddy & Krishnamurthy 1968 |
| 120. <i>ramamensis</i> | Dwivedi (in press) |
| 121. <i>raychaudhurii</i> | Gupta 1969. Syn. of <i>D. rajasekari</i>
Reddy & Krishnamurthy 1968. Ref.
Bock & Wheeler 1972. |
| 122. <i>repleta</i> | Wollaston 1858 |
| 123. <i>rhopaloea</i> | Bock & Wheeler 1972 |
| 124. <i>riverata</i> | Singh & Gupta 1977 |
| 125. <i>rufa</i> | Kikkawa & Peng 1938 |
| 126. <i>setaria</i> | Parshad & Singh 1971 |
| 127. <i>setitarsa</i> | sp. nov. |
| 128. <i>silvalineata</i> | Gupta & Ray-Chaudhuri 1970 |
| 129. <i>subtilis</i> | Kikkawa & Peng 1938 |
| 130. <i>suzukii indicus</i> | Parshad & Paika 1964 |
| 131. <i>takashii</i> | Sturtevant 1927 |
| 132. <i>testacea</i> | van Roser 1840 |
| 133. <i>tricombata</i> | Singh & Gupta (in press) |
| 134. <i>trilutea</i> | Bock & Wheeler 1972 |
| 135. <i>trisetosa</i> | Okada 1966 |

Genus <i>Drosophila</i> Fallén (continued)	136. <i>tristipennis</i>	Duda 1924
	137. <i>trizonata</i>	Okada 1966
	138. <i>truncata</i>	Okada 1964
	139. <i>varietas</i>	Singh 1972

*Indicates names were reported for new species, but no description of these supposedly new species has been published so far.

Gvozdev, V.A., T.I. Gerasimova, G.L. Kogan, Ya.M. Rosovsky, S.G. Smirnova.
Institute of Molecular Genetics, USSR Academy of Sciences, Moscow 123182, USSR. A collection of G6PD mutations which suppress the lethal effect of mutations affecting 6-phosphogluconate dehydrogenase in *D. melanogaster*.

We have obtained 39 mutations in the *Zw* locus (1-63)(Lindsley and Grell 1968) of *D. melanogaster*. 32 mutations were induced with ethyl-methane sulfonate (EMS), one with γ -irradiation as described earlier (Gvozdev et al. 1977), and six were selected as spontaneous mutations. All the mutations were selected as recessive X-linked suppressors which corrected the lethal effect of mutations inactivating 6-phosphogluconate dehydrogenase. The amount of protein product of

the gene as assessed by immunochemical techniques remained unchanged in all cases. Meanwhile if mutant individuals kept an active enzyme its properties usually differed from the wild type enzyme. These results suggest that all the mutations affect the structural part of the locus. The frequency of mutations affecting G6PD was evaluated by comparing the number of sisters and revertant brothers in the progeny of the cross between C(I)RM, *ywf* females and mutagen-treated *Pgd⁻ pn/w⁺Y* males (no treatment in the case of spontaneous mutagenesis). The frequency came to 6.6×10^{-5} for EMS-induced mutations and about 0.6×10^{-6} for spontaneous mutations. Both figures accord with other people's data (Green 1977; Mukai and Cockevham 1977; Schalet 1957, 1978; Simmons and Crow 1977). The mutants showed a broad range of G6PD activities as assessed under optimum conditions for the wild type: from complete inactivity (17 mutations) to the normal level.

A study of mutant G6PD activity in *Drosophila* extracts revealed considerable activity oscillations probably due to the high and uncontrollable lability of the mutant enzyme. In some cases the G6PD activity in mutant extracts exceeded the G6PD activity in wild type *Drosophila* extracts, which shows that mutations may increase the maximum rate of the reaction catalyzed by G6PD.

In accordance with the proposed biological mechanism of suppression (Gvozdev et al. 1977) all null-mutations proved to be good suppressors, i.e., the number of males in the progeny which carried a lethal mutation and a suppressor did not differ from the number of normal sisters carrying linked X chromosomes. Most of the mutants keeping some level of G6PD activity also showed a good suppression of the lethal mutations, although this group included some weak suppressors (5,12,15,23,26,28,47).

The table shows that in most of the mutants that keep G6PD activity the enzyme is different from normal G6PD. It is not always possible, however, to establish a correlation between the degree to which the enzyme is changed and the level to which viability is restored. This is not surprising since the data on G6PD activity *in vitro* do not necessarily reflect its activity in the cell (Olaniyi et al. 1976). A similar situation has been described for mutant forms of human G6PD when the emergence of a chronic haemolysis of erythrocytes could not be related to specific changes in the enzyme's functional properties (Johnson et al. 1977).

A comparison of the viability of heterozygotes for various mutant alleles of the *Zw* gene with the viability of the corresponding homozygous stocks revealed the possibility of inter-allelic complementation, but only for combinations of (*su*)14 with three other suppressors (2,9 and 12). The number of *su*2/*su*4 and *su*9/*su*4 heterozygotes was decreased 5 to 50 times as compared with the corresponding males and their development was considerably delayed. The number of *su*2/*su*4 females was halved.

References: Green, M.M. 1977, Proc. Nat. Acad. Sci. USA 74:3490; Gvozdev, V.A., T.I. Gerasimova, G.L. Kogan and Ya.M. Rosovsky 1977, Molec. gen. Genet. 153:191; Johnson, G.J., M.E. Kaplan and E. Beutler 1977, Blood 49:247; Lindsley, D.L. and E.H. Grell 1968, Carnegie Inst. Wash. Publ. 627; Mukai, T. and C.C. Cockevham 1977, Proc. Nat. Acad. Sci. USA 74:2154; Olaniyi, A., G. Babalola, J.G. Beetlestone and L. Luzzatto 1976, J. Biol. Chem. 251:2993; Schalet, A.P. 1957, Genetics 42:393; _____ 1978, Mutation. Res. 49:313; Simmons, M.J. and J.F. Crow 1977, Ann. Rev. Genet. 11:49.