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A spontaneous double mutant in *Drosophila bipectinata*.

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Drosophila bipectinata is a member of the *bipectinata* complex of *ananassae* subgroup of *melanogaster* species group. It is distributed in South East Asia including India. In laboratory stocks of this species, spontaneous mutations such as brown eye, sepia eye, and cut wings have already been described (Hegde and Krishna, 1995; Singh *et al.*, 1995; Banerjee and Singh, 1996). In the present study, we report a spontaneous autosomal double recessive mutation in this species.

We detected several males and females with purple eyes and spread wings double mutant characters in one of our laboratory stocks which was established from a naturally inseminated isofemale line collected from Mysore, Karnataka in 1994. These mutant flies were aspirated out and maintained in separate vials containing food. The crosses between purple eyes and spread wing males and females yielded purple eyes and spread wings, indicating that the stock is pure for both purple eyes and spread wings.

Table 1. Normal and reciprocal crosses between wild and double mutant (purple eyes and spread wings) in *Drosophila bipectinata*.

Class	Number observed	Number expected	χ 2	Number observed	Number expected	χ 2
Wild	459	450	0.18	339	342	0.03
Purple	156	150	0.24	120	114	0.316
Spread	148	150	0.02	116	114	0.035
Purple and Spread	51	50	0.02	36	38	0.10

p value = insignificant at 0.05 level.

The pattern of inheritance of this mutant was studied by crossing mutant males with wild type females. Reciprocal crosses were also made using wild males and virgin mutant females. F_1 progeny consisted of only wild type flies. This shows that the mutant phenotype is recessive. Reciprocal crosses also yielded the same results. Therefore, purple eyes and spread wing mutants are autosomal recessive mutations. The F_1 inbreeding gave both wild and mutant flies in a 9:3:3:1 ratio (Table 1). This shows that the two genes, purple eyes and spread wings, assort independently. Test cross results (Table 2) confirm the difactorial inheritance of the purple eyes and spread wings. This is the first report of a spontaneous double mutation in *D. bipectinata*.

Table 2. The cross between F_1 female and double mutant (purple eyes and spread wings) males in *Drosophila bipectinata*.

Class	Number observed	Number expected	χ 2
Wild	140	133	0.37
Purple	122	133	0.90
Spread	138	133	0.18
Purple and Spread	129	133	0.12

p value = insignificant at 0.05 level.

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