exposed to electron beam. $LD_{50}$ (24 hrs) were 840 Gy and 850 Gy for gamma rays and electron beam, respectively. Dose from 100 Gy to 400 Gy was considered as sublethal in both the radiations. From the results, it is clear that *Drosophila* is tolerant to radiation up to 850 Gy. Although there are several studies on gamma radiation induced toxicity in *D. melanogaster*, our study is the first to report the toxicity of electron beam radiation on *D. melanogaster*.

The results of $LD_{50}$ dosage and sublethal dosage of gamma rays and electron beam will be useful in evaluating the natural radioprotective agents in *D. melanogaster*. These studies are currently in progress in our laboratory.

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## Drosophilid collection in the Font Groga site, Barcelona (Spain).

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During October 23rd and 24th and November 2012 we collected a sample of drosophilids at Font Groga (Barcelona). This site is located on the foothills of the Tibidabo mountain, which is located on the northwest edge of Barcelona and at approximately 400 m above sea level. The vegetation is typical for the area, and it is mainly composed of a sparse pine forest (*Pinus pinea*) with some oaks (*Quercus ilex*) and Mediterranean brushwood. Flies were netted over 12 baits containing fermenting bananas. Font Groga is a common place for sampling drosophilids (Araúz *et al.*, 2009; Calabria *et al.*, 2012). The distribution of trapped flies, according to species and sex, is presented in Table 1.

Table 1. Number of adult flies collected in Font Groga (Barcelona, Spain) in autumn 2012.

| Species | 23rd Oct. | 24th Oct. | 6th Nov. | Total | Percentage |
|---|---|---|---|---|---|
| *D. subobscura* (♂) | 3 | 14 | 1 | 18 | 3.52 |
| *D. subobscura* (♀) | 6 | 11 | 0 | 17 | 3.33 |
| *D. melanogaster* (♂) | 2 | 5 | 0 | 7 | 1.37 |
| *D. simulans* (♂) | 75 | 95 | 1 | 171 | 33.46 |
| *D. melalo/simulans* (♀) | 71 | 161 | 4 | 236 | 46.18 |
| *D. suzukii* (♂) | 4 | 7 | 0 | 11 | 2.15 |
| *D. suzukii* (♀) | 3 | 31 | 2 | 36 | 7.05 |
| *D. immigrans* (♀) | 6 | 7 | 0 | 13 | 2.54 |
| *D. phalerata* (♀) | 1 | 0 | 0 | 1 | 0.20 |
| *Scaptomiza* sp. | 1 | 0 | 0 | 1 | 0.20 |
| Total | 172 | 331 | 8 | 511 | 100 |

A large proportion of *D. simulans* males was found. The invasive species *D. suzukii* (Calabria *et al.*, 2010; Cini *et al.*, 2012) was detected in a non-negligible quantity. Taking into account the number of males and females, the estimated $N_e$ for *D. suzukii* in the Font

Groga sample was 33.70. A similar value was obtained for *D. subobscura* (34.97). Finally, in the study of species diversity the values obtained for *H'* (Shannon diversity index) and *J* (Shannon uniformity index) were 0.678 and 0.421, respectively. These estimates are very similar to those obtained in September 2009 in Montpellier by Calabria (2012), who reported *H'* = 0.679 and *J* = 0.422, but differ from those reported by the same author in a Font Groga sample of October 2007 (*H'* = 0.904 and *J* = 0.505).

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## Evidence of selective mating in *D. malerkotliana*: greater reproductive success of wild flies than Spw mutant.

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### Introduction

Mating behavior of *Drosophila* consists of specific actions which are accompanied by orientation movements. Such actions referred to as courtship displays are performed sequentially. Mating occurs only if the female responds by performing acceptance signals. In *Drosophila* mating behavior has been studied using various species, strains and mutants (Merrell, 1949; Reed and Reed, 1950; Rendel, 1951; Bastock, 1956; Petit, 1959; Barker, 1962). These studies have shown the genetic control of this behavior. Though mutants are rare events, they form the source of variations for evolution and through these mutants the functioning of many genes can be understood. Therefore more studies using mutants are warranted.

In *Drosophila* the pattern of mating has been tested using mutants (Merrell, 1949; Crossley and Saul, 1970; Rendel, 1951). Some of these studies showed the occurrence of selective mating while others found a lack of selective mating. The lack of selective mating could be due to changes in their behavior patterns causing them to provide sub-optimal courtship to reduce activity generally (Bastock, 1956; Kyriacou *et al.*, 1978) so that females reject more frequently than wild males. In almost all these studies mutants of *D. melanogaster* have been employed due to availability of mutants in this species. In contrast to this only a few mutants have been identified and described in other species of *Drosophila*, such as *D. hydei, D. virilis, D. subobscura, D. pseudoobscura, D. ananassae, D. bipectinata, D. nasuta*, and *D. malerkotlinana* (Lifechytz, 1974; Strursa, 1983; Mohanty *et al.*, 1988; Lozovskaya and Evengener, 1991; Singh and Sisodia, 1999). Therefore, in the present study Spw mutant of *D. malerkotliana* has been employed to study the role of Spw male and female in pre mating and post copulatory success in *D. malerkotliana*. *D. malerkotliana* is a member of the *bipectinata* species complex of the *ananassae* sub group of the *melanogaster* species group distributed in South East Asia. In the laboratory stock of this species, Spw spontaneous recessive autosomal mutation has been detected (Krishna and Hegde, 1998). Therefore, in the present study wild and mutant spread winged strains of *D. malerkotliana* were used to study the role