

RESEARCH NOTE

Screening of pumpkin (*Cucurbita* sp.) germplasm for sources of resistance against melon fruit fly (*Bactrocera cucurbitae*)

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ABSTRACT

Fifty seven pumpkin (*Cucurbita* sp.) genotypes from the germplasm maintained at Vegetable Department of K.R.C.C.H., Arabhavi were screened for resistance against melon fruit fly under natural epiphytotic conditions on the bases of per cent fruit infestation. Arka Suryamukhi was categorized as highly resistant genotype with less than 10 per cent fruit infestation. The genotypes, KP-3, KP-19, KP-32 and KP-38 showed 10-20 per cent fruit infestation and were categorized as resistant genotypes. It was concluded that Arka Suryamukhi, KP-3, KP-19, KP-32 and KP-38 can be used as source of resistance for developing pumpkin genotypes resistant to melon fruit flies.

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Pumpkin (*Cucurbita* sp.) is an important cucurbitaceous vegetable, grown under wide range of agro-climatic conditions all over the world. High productivity, low cost of production, good storability, long period of availability, better transport qualities, excellent response to forcing and comparatively high content of carotene (a precursor of vitamin A) in fruits, have enhanced the importance of this crop. Several insect-pests are known to infest the cucurbits, among them melon fruit flies are economically important pest and are geographically distributed throughout the tropics and subtropics of the world (Drew, 1992) especially in most of the countries of South East Asia (Allwood *et al.*, 1999). It has more than 81 plant species as its host (Dhillon *et al.* 2005), but plants of family Cucurbitaceae are considered to be its preferred hosts (Allwood *et al.*, 1999). Usually chemicals are applied for their control, but this is very expensive and some chemical show high residual effects which causes health hazard. And sometimes insect develops resistance against insecticides. Thus, attention is invited to manage the insects by

developing resistant varieties. Hence, an attempt was made to screen the pumpkin (*Cucurbita* sp.) genotypes for fruit fly infestation.

The present experiment comprised of fifty seven genotypes of pumpkin laid out in a Randomized Block Design with two replications during the year 2009-10 with row to row distance of 2 m and plant to plant distance of 0.9 m. From each harvest, the number of fruits infested with fruit flies were recorded and values for all the harvests were summed up to get total number of infested fruits for each genotypes. The per cent incidence of fruit fly under natural epiphytotic conditions was calculated. The genotypes were grouped by following the rating system, given by Nath (1966) for the fruit damage as immune (no damage), highly resistant (1-10%), resistant (11-20%), moderately resistant (21-50%), susceptible (51-75%) and highly susceptible (76-100%).

The reaction of pumpkin (*Cucurbita* sp.) genotypes to fruit fly infestation is presented in Table 1. The only genotype Arka Suryamukhi was found to be highly resistant to fruit fly.

Table 1: Reaction of pumpkin genotypes to fruit fly infestation

Sr. No.	Per cent fruit infestation	Reaction	Cultivars
1.	No damage	Immune	----
2.	1-10	Highly resistance	Arka Suryamukhi
3.	11-20	Resistant	KP-3, KP-19, KP-32 and KP-38
4.	21-50	Moderately resistant	KP- 1, KP-2, KP-4, KP-5, KP-6, KP-7, KP-8, KP-12, KP-13, KP-14, KP-15, KP-16, KP-17, KP-18, KP-20, KP-21, KP-23, KP-24, KP-25, KP-26, KP-27, KP-28, KP-30, KP-31, KP-33, KP-35, KP-36, KP-37, KP-40, KP-41, KP-43, KP-44, KP-45, KP-46, KP-47, KP-48, KP-49, KP-51, KP-53, KP-54, Belgaum Local and Arka Chandan.
5.	51-75	Susceptible	KP-10, KP-22, KP-29, KP-34, KP-39, KP-42 and KP-52.
6.	76-100	Highly susceptible	KP-9, KP-11 and KP-50.

The genotypes KP-3, KP-19, KP-32 and KP-38 were found to be resistant for fruit fly. The genotypes KP- 1, KP-2, KP-4, KP-5, KP-6, KP-7, KP-8, KP-12, KP-13, KP-14, KP-15, KP-16, KP-17, KP-18, KP-20, KP-21, KP-23, KP-24, KP-25, KP-26, KP-27, KP-28, KP-30, KP-31, KP-33, KP-35, KP-36, KP-37, KP-40, KP-41, KP-43, KP-44, KP-45, KP-46, KP-47, KP-48, KP-49, KP-51, KP-53, KP-54, Belgaum Local and Arka Chandan were found to be moderately resistant to fruit fly. Whereas, the genotypes KP-10, KP-22, KP-29, KP-34, KP-39, KP-42 and KP-52 were found to be susceptible and the genotypes, KP-9, KP-11 and KP-50 exhibited highly susceptible reaction to fruit fly infestation. Hence, the genotypes Arka Suryamukhi, KP-3, KP-19, KP-32 and KP-38 could be used in breeding programme to develop resistant varieties to fruit fly.

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