Advances in Bioresearch
Adv. Biores., Vol 16 (6) November 2025: 410-412

Print ISSN 0976-4585; Online ISSN 2277-1573
Journal's URL:http://www.soeagra.com/abr.html
CODEN: ABRDC3
DOI: 10.15515/abr.0976-4585.16.6.410412

Advances in Bioresearch

SHORT COMMUNICATION

Varietal Resistance of Guava Fruits against *Bactrocera dorsalis* Hendel at Muzaffarpur, Bihar (India)

Rahul Kumar[1] and Manendra Kumar[2]
1. Research Scholar, University Department of Zoology, B.R.A.Bihar University, Muzaffarpur
2. Former Professor & Head, University Department of Zoology, B.R.A.Bihar University, Muzaffarpur

ABSTRACT
Fruits and vegetables are vital for human health, providing essential vitamins, minerals and fibres. Guava is the fourth mostly widely grown fruit crop in India. Guava is a very tasty fruit having special importance in the traditional system of medicine also. Guava is infested by about 80 species of insect pests like fruit flies, caterpillar, capsule borer, mealy bug, hairy caterpillar, bark eating caterpillar and many sacking insect pests. Out of these insect pests, Bactrocera dorsalis was found to be most destructive pest causing a heavy loss in guava field. In present investigations, carried out in Muzaffarpur (Bihar), three common varieties of guava were selected to estimate the percentage of infestation by Bactrocera dorsalis. This was observed that Harijha varied of guava was highly susceptible to fruit fly infestation, followed by Apple guava (Allahabad Safeda) while red guava was found to be less susceptible to the fruit flies' infestation.
Keywords: *Guava, Varietal resistance, Dacus, Bactrocera, dorsalis, Muzaffarpur, Bihar*.

Received 12.08.2024 Revised 01.10.2024 Accepted 26.11.2025

How to cite this article:
Rahul K and Manendra K. Varietal Resistance of Guava Fruits against *Bactrocera dorsalis* Hendel at Muzaffarpur, Bihar (India). Adv. Biores., Vol 16 (6) November 2025: 410-412.

INTRODUCTION

Fruits and vegetables are vital for human health, providing essential vitamins (A, Thiamin, Niacine, B6, C,E), minerals and fiber [1]. Guava (*Psidium guajava* L.) is the fourth mostly widely grown fruit crop in India. The area under guava is about 0.15 million hectares producing 1.80 million tons of fruits. Uttar Pradesh, Bihar, Madhya Pradesh, Andhra Pradesh and Maharashtra are leading states known for producing the highest quantity of this fruit in large cultivable land areas. During 2021-2022 more than 434 thousand metric tonnes of guava produced in Bihar [3]. Guava is commonly called 'the poor man's fruit" or "apple of tropics". It is a popular fruit of the tropical and sub-tropical climates of the world. Diversity exits in fruit size, shape, pulp to seed ratio, seed characteristics, flavor, texture, colour of flesh, aroma, vitamin C content, susceptibility to pest, diseases, frost, fruit cracking, growth habit, flowering and fruit characteristics and post-harvest characteristics [2]. Guava fruit is an ethnomedicine. It has special importance in the traditional system of medicine. In Indian Ayurveda, it is considered as an important herbal medicine for dysentery and diarrhea. In traditional Chinese medicine system, it is used to treat many diseases.

Guava is infested by about 80 species of insect pests like fruitflies, caterpillar, capsule borer, mealy bug, hairy caterpillar, bark eating caterpillar and many sucking insect pests. Out of these insect pests, fruit fly (*Bactrocera* spp.) is major destructive pest of guava, causing a heavy loss in guava yield [4,5,6,12]. Atwal and Dhaliwal, [2], Kumar and Kumar [7], Netwell and Haramoto, [9] reported that *Dacus dorsalis* attacks over 300 cultivated and wild fruits including guava, mango, banana, Papaya, avocado, sugar apple, tomato etc.

The female fruit flies puncture the soft and tender fruits by their sharp ovipositor and lay eggs under the soft tissues of guava. After hatching the larvae/maggots feed on the pulp of the fruits and finally they rotten the fruits.

In Bihar, several improved and local varieties of guava are cultivated in different districts, mostly in Nalanda, Muzaffarpur, Vaishali, Champaran, Bhagalpur, Patna, etc. Important grown varieties are Allahabad safeda, Lalif, Shweta, Punjab Pink, Harijha, Chillidar, Apple guava, red guava etc. In Muzaffarpur district three main varieties of guava are commonly cultivated by growers-Harijha, Apple guava and Red guava.

MATERIAL AND METHODS

Present study on varietal resistance of guava fruits against *Bactrocera dorsalis* was carried out in Paroo of Muzaffarpur (Bihar), where all common varieties (Harijha, Apple guava and red guava) were planted. Each variety comprised one treatment and each treatment was replicated five times. To determine the fruits infestation, survey was made in guava orchard in the month of September 2023. (Rainy Season guava shows maximum fruit fly infestation usually in the month of September). At the time of survey, hundred guava fruits were collected at random from each replicate. Samples of all three varieties were brought to the laboratory for estimating the percentage of fruit infestation.

RESULTS AND DISCUSSION

Results obtained were summaries and statistically analysed in the tables 1A and 1B.

There were three common varieties in guava orchard at Paroo of Muzaffarpur-

(a) **Harijha -** This is round, greenish yellow fruit, generally thin skinned with a sweet taste. This is most common guava in Muzaffarpur.

(b) **Apple guava-** This is also known as safeda or Allahabad Safeda. This is popular for its sweet and crisp taste, making it a favorite for fresh consumption and juice production.

(c) Red guava- This is red, pink fleshed guava, skin is thicker than Harijha and Apple guava. It is also known for its rich flavor.

This is evident from the data of the table 1A and 1B that the guava fruits of Harijha variety shown significantly highest infestation (38.40%) followed by Apple guava (33.60% infestation) and the minimum fruit infestation (28.60%) was observed in red guava. The percentage of infestation varied is three varieties, probably due to the thickness of the skin of guava and the sugar content.

According to Naryanan and Batra [8] the oriental fruitfly (*Bactrocera dorsalis* (Hendel) is one of the key pests of monsoon crop. The fly is polyphagous in nature and attacks a variety of crops including guava. Various authors suggested that fruit pests were more suitable for attraction of the fruit fly adults. Singh [11] reported that the banana pulp was highly suitable for attraction followed by guava. Various workers reported fruit pulps as more suitable bait materials for attraction of tephritides [1,6] and thus support to these findings. Singh [10] also reported that thin skinned Allahabad safeda and Local varieties of guava were highly susceptible and thick-skinned pear-shaped variety as least susceptible to *Bactrocera darsalis* infestation. This may be advised that use of less susceptible varieties of guava should be used for better management of the fly attack.

Table-1A: Variability of resistance in different varieties of guava fruits against *Bactrocera dorsalis* at Muzaffarpur during 2023.

Varieties	Number of replicates					Average fruits infestation (%)
	Percentage of fruit infestation					
	I	II	III	IV	V	
Harijha	32	40	36	45	39	38.4
Apple guava	27	31	39	37	34	33.6
Red guava	29	32	28	31	23	28.6

Table-1B: Analysis of Variance

Source of Variance	Sum of Squares	Degree of freedom	mean squares	F.Ratio
Between samples	**167.90**	**2**	**83.95**	
				4.33*
Within Samples	**232.64**	**12**	**19.39**	

F.05 (for V1 = 2, V2 = 12) = 3.88

F calculated 4.33 > F.05 - 3.88; * Significant.

ACKNOWLEDGEMENT

Authors are thankful to the Head, University Department of Zoology, B.R.A.Bihar University, Muzaffarpur (Bihar) for providing laboratory facilities.

REFERENCES

1. Aggarwal, M.I. and Kumar, P. (1999), Relative efficacy of bait and attraction combinations against peach fruit fly, *Bactrocera zonatus* (Sounders), Pestology, 73:21-27.
2. Atwal, A.S. and Dhaliwal, G.S. (2009), Agricultural pests of South Asia and their management, *Kalyani Publishers*, 380.
3. Birdi, T. Baswani, P; Brijesh, S; Tetali, p; Natu, A. (2010), Newer insights in to mechanism of action of *Psidium guajava* L. leaves in infectious diarrhoea. *BMC complement Altern Med.* 10:33.
4. Butani, D.K. Insects and fruits. (1979) *Periodical Expert Book Agency*, New Delhi 55.
5. De, Lc and De. T. (2019), Healthy Food for Healthy life. *Journal of Global Biosciences*. 8:6453-6468.
6. Jhala, RC, Sisodiya, D.B; Sardana H.R.; Tyagi, A; Patel, Z.P; Jagadale, V.S., Stone house, J.M.; Mumford, J.D. and Verghease, A. (2005). Laboratory and field effectiveness of tephrid fruit fly baits in Gujrat and elsewhere in India. *Pest mgmnt. in Hort. Ecosystems* 11 (2): 91-98.
7. Kumar, Rahul and Kumar, Manendra (2023), Life cycle of guava fruitfly *Bactrocera dorsalis* Hendel. *Advances in Bioresearch* 14 (5): 417-419.
8. Narayanan, E.S. and Batra, H.N. ()1960), Fruit flies and their control *ICAR*, New Delhi
9. Netwell, I.M. and Horamoto, F.H. (1968). Biotic factors influencing population of *Dacus dorsalis* in Hawaii. *proceedings of Hawaiian Entomology society*. 20 (I) : 81-139.
10. Singh, G; Misra, A.K.; Musarat, H; Tandan, D.K. and Pathak, R.K. (2003) The *Guava central Institute of Subtropical Horticulture, Lucknow*, 38.
11. Singh, Rajpal (2008). Studies on varietal susceptibility of oriental fruitfly, *Bactrocera dorsalis* (Hendel) on guava fruits and its attraction to different poison baits, *Asian Journal of Bioscience*, vol. 3, No. 2: 330-332
12. Verghese, A. and Sudhadevi, K. (1998). Relation between trap catches of *Bactrocera dorsalis* (Hendel) and abiotic factors. *Proceedings of first National symposium on pest Management in Horticultural crops*, Bangalore, India. 15-18.