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A Review on the guava (*Psidium guajava* L.) with period of growth and development of bark borer (*Indarbela tetraonis* Moore)

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Abstract :

Guava (Psidium guajava L.) is well known tropic tree which is abundantly found in tropical and sub tropical region for fruit. It belongs to the family Myrtaceae and fruit is rich in vitamin A, vitamin C, iron, phosphorus, calcium and minerals. Almost all states of India growing guava but Uttar Pradesh, Bihar, West Bengal, Madhya Pradesh, Karanataka are the leading guava growing states in India. Guava is the fourth most widely grown fruit crop in India. During observation on the growth and developmental period on five varieties of guava related with Indarbela tetraonis that is total larval period was found maximum 31.33 days in local seedling and minimum 24.21 days in Lucknow-49 variety. Total period showed a range of variation from 21.50 to 27.75 days in Allahabad Safeda to Apple colour variety during the growth and development. There was about 15 to 30 Larvae observed on a single tree. They eat through the bark into the wood. The incidence of the pest is observed by the presence of the peculiar winding galleries, generally near the forks on the stem and branches. Larva pupate inside the bore and adult emerges, leaving a portion of the empty pupal care protruding out of the bore hole.

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Keywords : Bark borer, crop, infestation, growth.

Introduction :

Guava is a popular fruit crop due to its availability in all season. It is commercially grown in India, Mexico, Brazil, Cuba, New Zealand, South Africa, Florida, China and Indonesia (Yadav 1996, Le et al. 1998, Tate 2000) but India is the world's largest producer of guava. Guava can be grown in plains and sub mountainous regions provided with sufficient care in against cold winds. The optimum temperature for guava production ranges between 23°C to 28°C. India has a wide variety of climate and soil. Chemical control measures enhance the productivity of guava (Brader, 1979 and Verma, 1985). It is an important fruit crop of India and is considered poor man's fruit or apple of tropics (Bose and Mitra, 1990). The area under guava is 2.05 lakh hactre with a production of 24.62 lakh tones. The fruit pulp is a commercial source of pectin and oil from its seed. Guava roots bark, leaves and immature fruits are used in local medicines (Dhaliwal and Arora, 1994). The dried leaves are also used as remedy for cough and chest ailments (Singh et al. 1988 and Dinesh and Yadav 1998). *Indarbela tetraonis* (Moore) is confined to tropical region. Its larva cause severe problem to plants by boring the wood. Its caterpillar are nocturnal. Indarbela is a polyphagous insect. The larva bores into the stem to about 15 to 25 cm. Only one larva found inside a bore hole which is used only as a shelter when it does not feed during the day time.

Material and Methods :

The experiment carried out on the several varieties of guava at River bed area of Bithoor, Kanpur. The district located under sub tropical region of research field. The texture of the experimental soil was sandy loam with medium fertility.

Experimental Findings :

Observation exhibited the growth and developmental period on different varieties of guava that incubation period of *Indarbela tetraonis* was found minimum 24hr in Allahabad Safeda and maximum 35hr in local seedling variety. It passes through five instar in their larval period and each instar takes about 3 to 7 days of variation. Total larval period was found maximum 31.23 days in local seeding and minimum 24.21 days in Lucknow-49 variety. Total pupal period showed a range of variation from 21.50 to 27.75 days in Allahabad Safeda to Apple Colour variety.

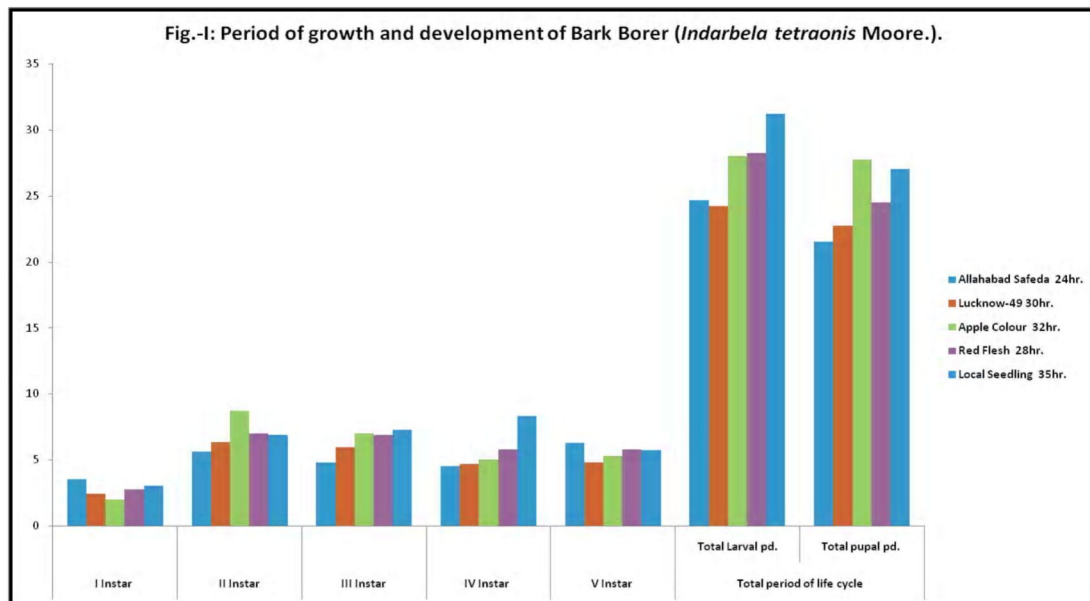
Result and Discussion :

The important findings were worked out in the observational data of bark borer (*Indarbela tetraonis*). Larva bores the stem 15 to 25 cm and feeds on the bark during night. Larva pupates inside the hole and the adult emerges leaving a portion of the empty pupal case protruding out of the bark hole (Panvar, 1995). Incubation period was found 24hr. in Allahabad Safeda and Maximum 35hr. in Local variety. It has 5 developing stages (instar). Larval period was found 31.23 in Local seedling.

**Table - 1 : Period of growth and development of Bark Borer
(*Indarbela tetraonis* Moore.)**

Sl. No.	Crop	Incubation Period	I Instar	II Instar	III Instar	IV Instar	V Instar	Total period of life cycle	
								Total Larval pd.	Total Pupal pd.
1.	Allahabad Safeda	24hr.	3.50 (1.87)	5.60 (2.37)	4.77 (2.18)	4.50 (2.12)	6.30 (2.51)	24.67 (4.97)	21.50 (4.64)
2.	Lucknow-49	30hr.	2.40 (1.55)	6.35 (2.52)	5.96 (2.44)	4.70 (2.17)	4.80 (2.19)	24.21 (4.92)	22.75 (4.76)
3.	Apple Colour	32hr.	2.00 (1.41)	8.70 (2.95)	6.99 (2.64)	5.00 (2.23)	5.30 (2.30)	27.99 (5.29)	27.75 (5.26)
4.	Red Flesh	28hr.	2.75 (1.66)	7.00 (2.64)	6.90 (2.63)	5.80 (2.41)	5.80 (2.40)	28.25 (5.31)	24.50 (4.94)
5.	Local Seedling	35hr.	3.00 (1.73)	6.90 (2.63)	7.28 (2.69)	8.30 (2.88)	5.75 (2.39)	31.23 (5.58)	27.00 (5.19)
	SE \pm		0.080	0.140	0.084	0.050	0.080	0.130	0.082
	C.D. at 5%		0.180	0.313	0.194	0.113	0.182	0.300	0.189

Note : Figures in Parenthesis are transformed values.



References :

- Bose, T.K. and S.K. Mitra (1990) : Fruits Tropical and sub tropical. Sixth Ed. *Naya Prakash*, pp. 63-131.
- Brader, L. (1979) : Integrated pest control in developing world. *A Review Entomol.* 24 : 225-254.
- Dhaliwal, G.S. and A. Arora (1994) : Trends in Agricultural Insect Pest Management *Commonwealth Pub.* New Delhi. pp. 21-25.
- Dinesh, M.R. and I.S. Yadav (1998) : Half-sib analysis in guava (*Psidium guajava* L.) 55(1) : 20-22.
- Le, H.T.; J.F. Hancock, T.T. Trinh (1998) : The fruit crop of Vietnam : introduced species and their native relatives. *Fruit variety J.* 52: 158-168.
- Panwar, V.P.S. (1995) : Agricultural insect pests of crops and their control. *Kalyani Publication I.A.R.T.*, New Delhi (Abst.), p. 67.

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- Singh, K; Sharma V.K., P.S. Shant (1988) : Efficacy of insecticide soaked cotton plugs against caterpillar of *Indarbela SP.* (Lepidoptera : Metarbelidae) infesting guava trees. *Pesticides* 22: 9-22.
- Tate, D. (2000) : Tropical fruit of Thailand. *Asia Books Co. Ltd.* Bangkok.
- Verma, T.D. (1985) : Incidence and Chemical Control of bark-eating Caterpillar, *Indarbela quadrinotata* walker on plum trees. *Indian J. Agric. Sci.* 55(2) : 131-132.
- Yadava U.L. (1996) : Guava (*Psidium guajava* L.) An exotic tree fruit with potential in the south eastern united states. *Hort. Science* 31: 789-794.