RESEARCH ARTICLE

ASSESSMENT OF HONEY DEW EXCRETION BY NON -TARGET BPH, *NILAPARVATA LUGENS* STAL.ONDIFFERENT IR-64 *BT* RICE EVENTS

Gajendra Kumar*[1], Shanjay Sharma[1], G. Chandel[2] and Randeep Kumar Kushwaha[1]

[1]Department of Entomology, CoA, IGKV, Raipur, Chhattisgarh, India-492012
[2]Department of Plant Molecular Biology & Biotechnology, CoA, IGKV, Raipur, Chhattisgarh India-492012

Received-11.08.2016, Revised-26.08.2016

Abstract: The experiment was undertaken at greenhouse of Entomology and Department of Plant molecular biology &biotechnology, CoA, Raipur during 2014 and 2015.Area marked due to honey dew excretion by BPH under different IR64 Bt rice events ranged from 15.52 to 24.85 mm^2. The maximum marked area (24.85 mm^2) was observed in IR-64-C followed by TN-1-C (23.58 mm^2) with minimum in Ptb-33-C (15.52 mm^2) during 2014. Whereas during 2015, new starved female was released and new filter paper was kept inside the funnel to receive the honey dew in all the rice events were ranged from 11.72 to 20.43 mm^2. The maximum marked area (20.43 mm^2) was observed in IR-64-4 followed by IR-64-1 and TN-1-C (23.58 mm^2), respectively and minimum in Ptb-33-C (11.72 mm^2). On the basis of two years, pooled mean of honey dew area marked under different rice events was ranged 13.62 to 21.43 mm^2. The highest honey dew excreted on IR64 Bt events was noticed (21.43 mm^2) in IR-64-4 followed by TN-1-C (20.84 mm^2) and minimum in Ptb-33-C (13.62 mm^2) within 24hrs. releasing of BPH. The descending order of honey dew excretion by starved female on Bt events was as IR-64-4> TN-1-C > IR-64-C> IR-64-1> IR-64-2> Ptb-33-C. The area of honey dew excretion by female on *Bt* rice and on non-transgenic control rice plants did not differ significantly.

Keywords*:* Bt protein, Non-target insect BPH, Honey dew excretion

REFERENCES

Bernal, C. C., Aguda, R. M. and Cohen, M. B. (2002). Effect of rice lines transformed with *Bacillus thuringiensis* toxin genes on the brown plant hopper and its predator *Cyrtorhinus lividepennis.* Entomol.Exper. Appl. 102: 21-28.

Gallagher, K. D., Kenmore, P. E. and Sogawa, K. (1994). Judicial use of insecticides deter plant hopper outbreaks and extend the life of resistant varieties in Southeast Asian rice. pp. 599-614. *In* R. F. Denno and J. T. Perfect (eds.), Plant hopper: their ecology and management. Chapman and Hall, New York.

High, S. M.; Cohen, M. B.; Shu, Q.Y. and Altosaar, I. (2004). Achieving successful deployment of *Bt*rice. *Trends in PlantScience*, 9, 286-292.

James, C. (2005). Executive summary: Global Status of Commercialized Biotech/GM Crops: 2005. *ISAAA Briefs*, No. 34, ISAAA: Ithaca, NY.

Pathak, P. K. and Heinrich, E. A. (1982). Bromocresol green indicator for measuring feeding activity of *Nilaparvata lugens* on rice varieties. Philipp. Entomol. 11: 85-90.

Pathak, P. K., Saxena, R. C. and Heinrichs, E. A. (1982). Parafilm sachet for measuring honeydew excretion by *Nilaparvata lugens* on rice. J. Econ. Entomol.. 75: 194–195.

Schoenly, K. G., Justo, Jr. H D, Barrion, A. T., Harris, M. K. and Bottrell, D. G. (1998). Analysis of invertebrate biodiversity in Philippines farmer's irrigated rice field. Environ. Entomol. 27: 1125-1136.

Tu, J., Zhang, G., Datta, K., Xu, C., He, Y., Zhang, Q., Khush, G. S. and Datta, S. K. (2000). Field performance of transgenic elite commercial hybrid rice expressing *Bacillus thuringiensis*δ endotoxin. Nat. Biotechnol. 18: 1101-1104.

Zhou, X.; Cheng, J. A.; Hu, Y. and Lou, Y.G. (2004). Effects of transgenic *Bt*rice on the population development of *Nephotettixcincticeps*. *Chinese Journal of Rice Science*, 19, 74-78.

Zhu, F.Sh.; Chen, H. X. and Lu, Y. Sh. (2001). Outbreak reasons and management technology of *Spodoptera litura*on economic crops.*Plant Prot. Technol. Extens*. 21 (7), 22.

*Corresponding Author