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Evaluation of pheromone trapping for monitoring of seasonal activity of *Spodoptera litura* in castor (*Ricinus communis*)

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Tobacco caterpillar, *Spodoptera litura* (Noctuidae: Lepidoptera) is an economically important pest of castor throughout the crop season. The larvae damage plants by feeding on leaves at night and remain concealed during day in the soil. Regular scouting of fields and collection and destruction of skeletonized leaves along with gregarious early instar larvae is very effective management method. However, regular scouting of the larvae is laborious and expensive. Monitoring the pest activity using pheromone traps for taking up timely control measures has been evaluated in groundnut and cotton and such studies on *S. litura* in castor are limited. The present study was undertaken to evaluate the relative performance of sex pheromone trap and light trap to monitor the seasonal activity of *S. litura* in castor. Funnel trap (Fero-T™) with the septa of *Spodoptera litura* (PCI Pvt. Ltd., Hyderabad) was used to monitor the pest activity in three locations in Hyderabad (Rajendranagar, Narkhoda and Patancheru) during *kharif* and *rabi* seasons (2012-13). In each location, four pheromone traps were installed in castor field (4000 m²) and weekly observations on male moths capture in traps were recorded. Weekly observations on the number of egg masses laid by the pest were also recorded on castor foliage (randomly selected 25 plants, 5 plants in 5 places) in two locations (Rajendranagar and Narkhoda). The results revealed two peak pheromone trap catches, the first during 33rd to 35th MW (August second fortnight) and second during 38th to 40th MW (September second fortnight). The highest peak catches of *S. litura* in three locations ranged from 33 to 257 moths/trap/week. Trap catches declined from 46th MW to 5th MW (November second week to February first week). Peak egg-masses in castor was observed during 38th MW (6.4/5 plants) at Rajendranagar and 34th MW (5.4/5 plants) at Narkhoda and the egg-masses count declined during 51st MW to 5th MW (0 to 0.6/5 plants). Significant positive correlation was found between number of egg-masses and pheromone trap catches ($r=0.78$ to 0.95). The capture of *S. litura* in light trap was lower than sex pheromone trap and the correlation values between number of trapped adults and egg-masses were higher in pheromone traps ($r=0.78$ to 0.95) than light traps ($r=0.37$ to 0.45). The results suggest that sex pheromone traps could be deployed to monitor populations of *S. litura* in castor as a labour saving method and field scouting may be initiated a week after heavy trap catches for the collection and destruction of "mesh" like skeletonized leaves along with early instar gregarious larvae.

Biography

Duraimurugan Ponnusamy has completed his Ph.D. at the age of 29 years from Tamil Nadu Agricultural University, Coimbatore. He is working as Sr. Scientist at DOR, Hyderabad. He has published more than 20 papers in reputed journals.

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Seed germination and seedling characters of CRIDA castor (*Ricinus communis* L.) germplasm

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Laboratory study was conducted with 22 genotypes of castor from CRIDA germplasm along with 3 checks viz., 48-1, DCH-519, ADCS-107 in order to assess the performance at seedling stage. The seedlings were raised in 250ml capacity plastic containers with soilrite medium and the observations recorded one week after germination. The data recorded on days to complete germination, root and shoot length and biomass and calculated germination percentage, germination speed, emergence index, vigour index, partitioning of biomass to root and shoot and efficiency of seed reserve conversion. The genotypes recorded significant differences in all the parameters recorded. The % germination varied from 60 to 100% and 12 genotypes recorded 100% germination. CRC-4 showed highest germination speed and emergence index and highest seedling biomass (0.212 g/pl). Seedlings of CRC-8 had highest root biomass and better root shoot ratio. The conversion of seed reserve to seedling biomass of selected castor genotypes ranged from 24.9% to 69.4% showing significant performance difference among the genotypes at initial stages of germination. Among the three checks tested, genotype 48-1 performed better for majority of the seedling parameters. The overall performance of castor genotypes at seedling stage revealed that the genotypes CRC-4, CRC-5, CRC-7, CRC-8, CRC-16, CRC-22 and CRC-23 were found to be better and can establish efficiently even under field conditions. Based on their seedling vigour and root characters, their performance even under moisture stress is expected to be better. Further evaluation of these genotypes under field condition is in progress.

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