

## Effect of tube diameter and tube colour on flight ability of laboratory-reared Melon fly, *Zeugodacus cucurbitae* (Diptera: Tephritidae)

Tahera Hossain\* , Farzana Yesmin, Md. Hasanuzzaman

Cytology and Biocontrol Research (CBR), Radiation Entomology and Acarology Division, Institute of Food and Radiation Biology, Atomic Energy Research Establishment, Bangladesh Atomic Energy Commission, GPO Box- 3787, Dhaka1000, Bangladesh.

\*Corresponding author (([taherahossain09@yahoo.com](mailto:taherahossain09@yahoo.com)))

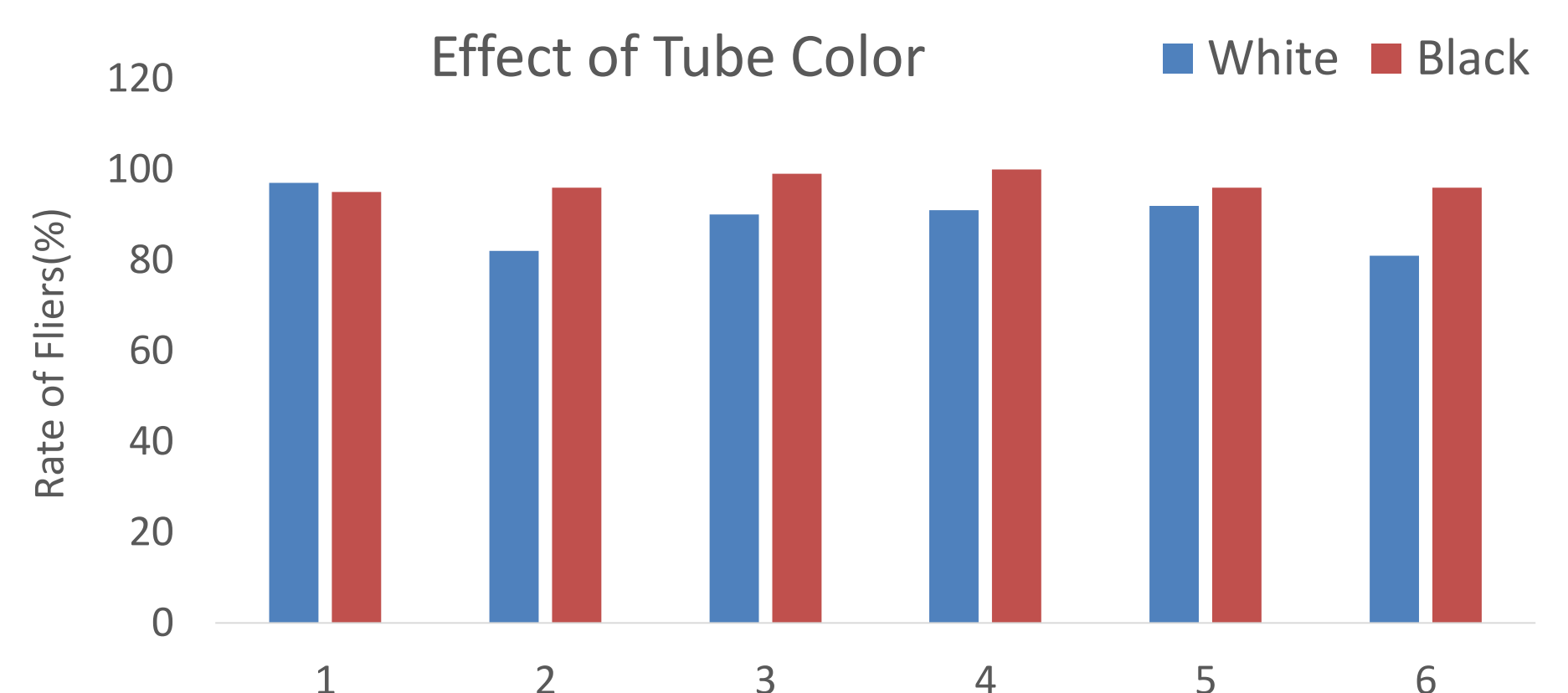
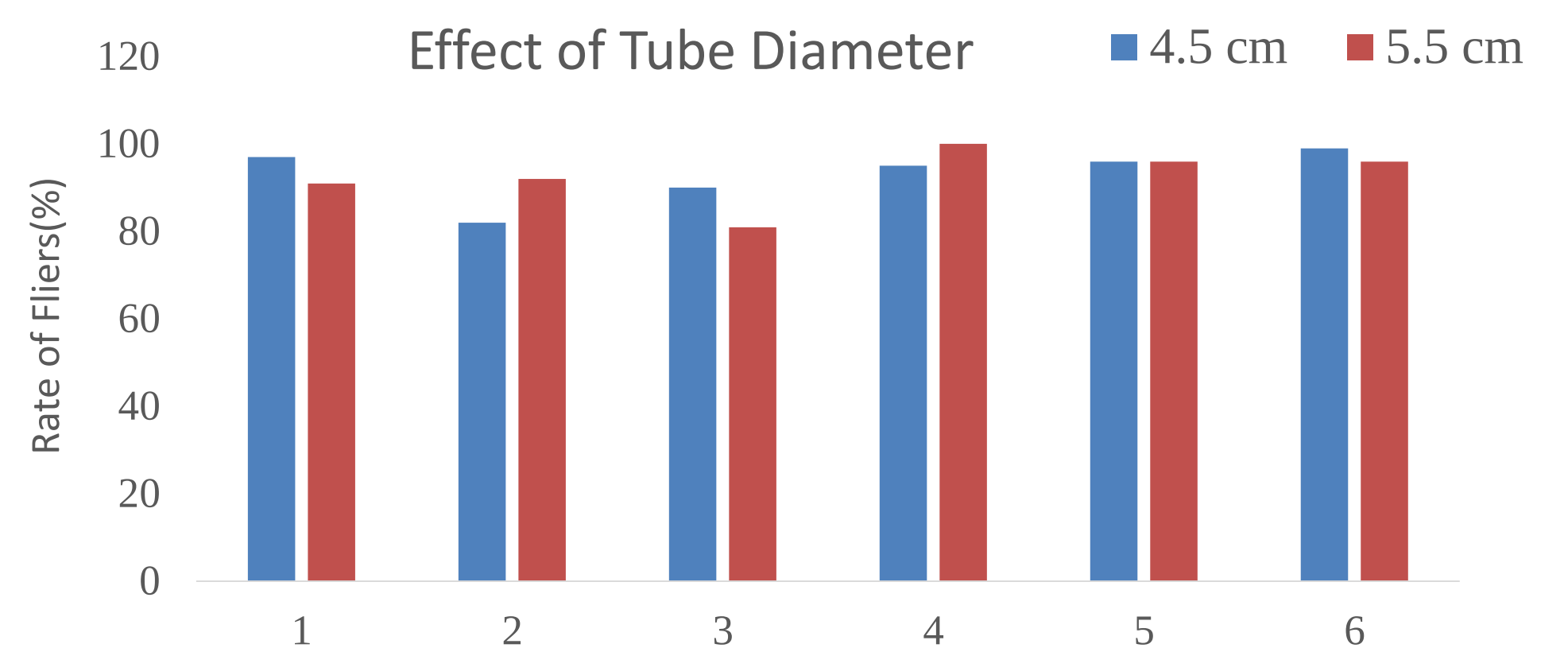
### INTRODUCTION & AIM

The melon fly, *Zeugodacus cucurbitae* is an economically important tephritid fruit fly and it infests fruits and vegetables of a number of different plant species in the plant family Cucurbitaceae causing economic losses. *Z. cucurbitae* causes damage to crops from primordial stages to harvest stage. Sterile insect technique (SIT) is an effective method to control this pest fly species. Flight ability test is a quality control parameter and serves as a key component in sterile insect technique. The aim of this experiment was to study the performance of lab reared colonies of the melon fly, experiments were done for testing the flight ability of melon fly in various tube colour and tube diameters.

### METHOD

- For fundamental and advanced research pure-line mass rearing of *Z. cucurbitae* is continuously conducted at the Cytology and Biocontrol Research (CBR) fruit fly laboratory.
- Flies were cultured in steel frame cages covered with nylon net and maintained at  $25 \pm 3^{\circ}$  C temperature, 60-65% humidity and 12:12 L:D in the laboratory. Food and water supply was *ad libitum*.
- To test the effect of tube diameter on flight ability, we used two tube diameter treatments (4.5 cm and 5.5 cm). Tube height was constant (10 cm). Six tubes were set up for each of the two treatments (with 100 pupae in each tube), resulting in a total of 12 tubes with 1200 pupae in total.
- To assess tube color impact on flight ability, another experiment was conducted. A total of 12 tubes (6 black tubes and 6 white tubes) with 100 pupae in each tube were observed, resulting total 1200 pupae. The tube height was same for all tubes (10 cm).

### RESULTS



The results showed that

- there was no significant difference between the two tube diameter treatments (4.5 cm and 5.5 cm) percentage of fliers ( $p > 0.05$ ,  $df = 1,10$  ;  $F = 0.02$ ).
- Tube colour has a significant effect on percentage fliers ( $p < 0.05$ ,  $df = 1,10$  ;  $F = 9.49$ ).

### IMPORTANCE

To know the changes in baseline data in flight ability protocols, present study could provide information to identify flight ability indices and sensitivity of the fliers.

### CONCLUSION

Though tube diameter does not have an effect on the percentage of fliers but the tube colours (black or white) certainly affected flight ability. Overall, number of fliers were significantly lower when white flight tubes were used .