

Effects of Gamma Radiation on Pupae of *Plutella xylostella* to phytosanitary treatment



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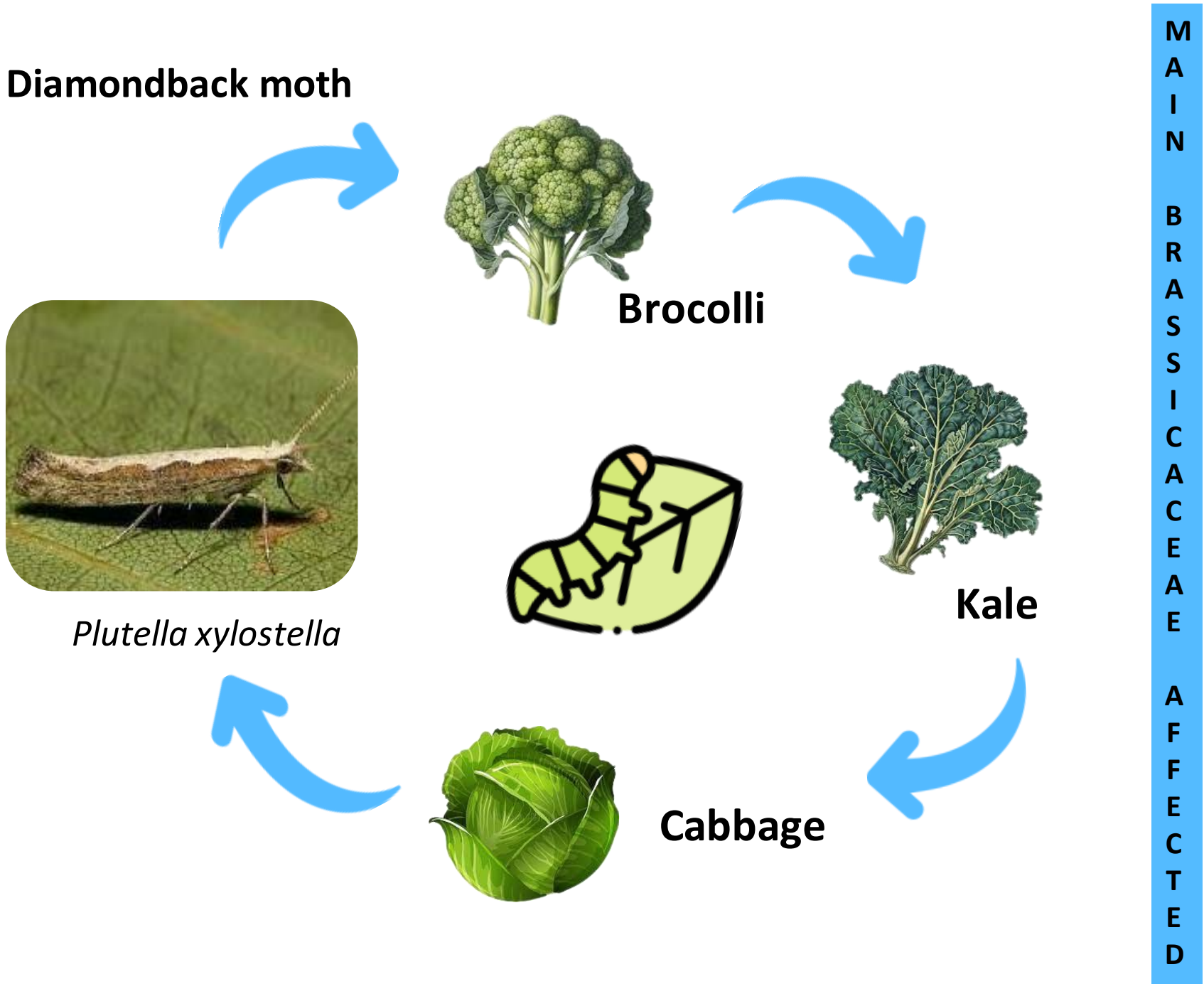
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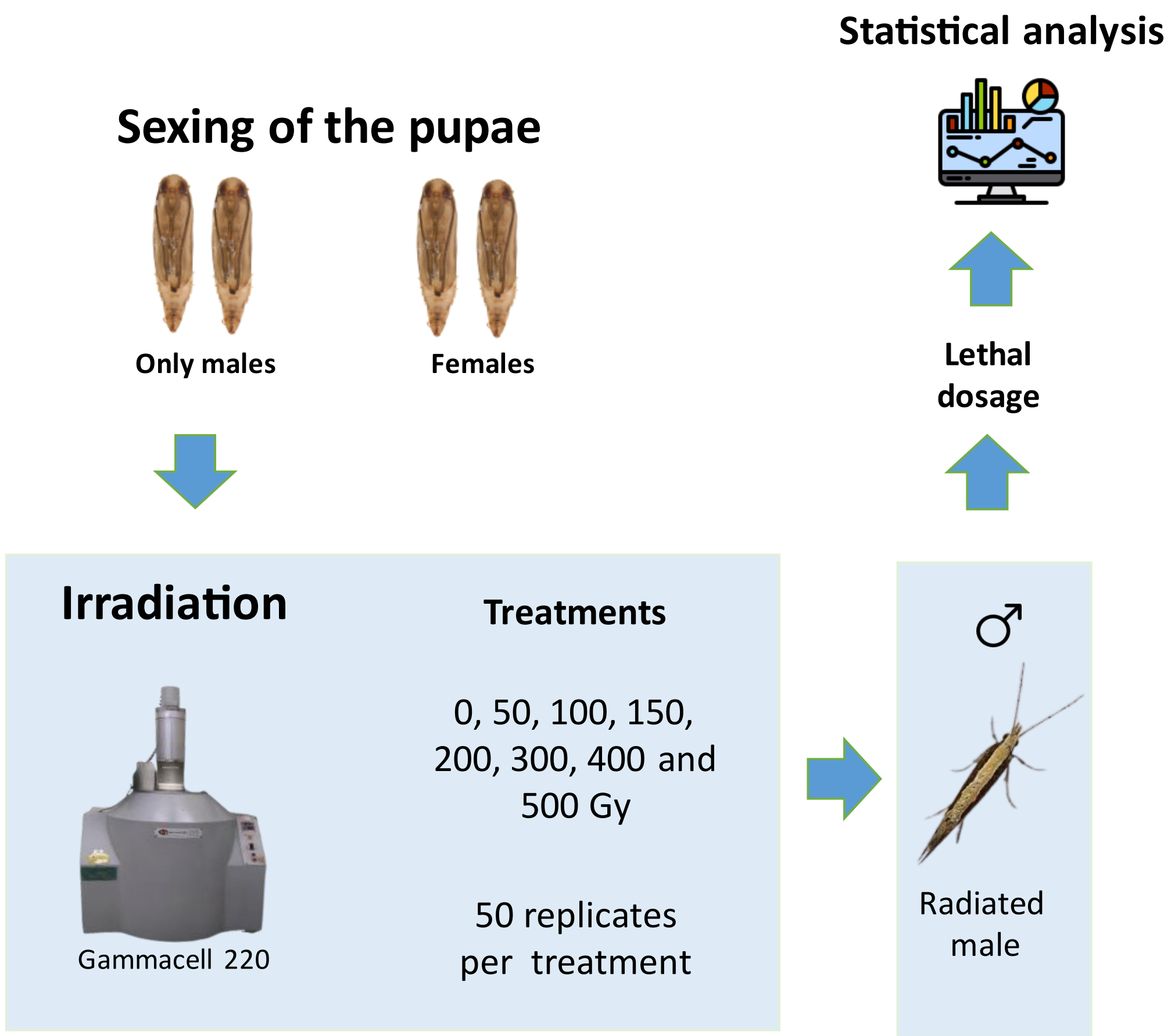
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INTRODUCTION



The objective of this part of our research investigation is to determine of lethal and sterilizing doses of gamma radiation for pupae of *Plutella xylostella* and establish an appropriate phytosanitary irradiation treatment against this pest.

METHODOLOGY



Data analysis The experimental design was entirely randomized. The data were subjected to analysis of variance and the means were compared using the Tukey test ($P \leq 0.05$).

RESULTS AND DISCUSSION

A summary of the main results:

Adult emergence from irradiated pupae occurred within three days for all treatments, while in the control group, adults emerged within an average of seven days. This suggests radiation induced an accelerated development, reducing the pupal period of *Plutella xylostella*, with gamma radiation's effect being dose-dependent.

Irradiated pupae produced fewer adults compared to non-irradiated ones. Emerged adults and survivors from irradiated pupae were able to mate with normal counterparts of the opposite sex.

A significant radiation effect was observed in the percentages of viable eggs, with no viability at doses of 300 and 500 Gy. We observed that 5-day-old pupae treated with doses up to 200 Gy did not exhibit a significant difference in longevity compared to the control group. Additionally, irradiated females did not lay eggs.

CONCLUSION

Based on the results, it is concluded that in the pupal phase of *Plutella xylostella*, irradiated with increasing doses of Cobalt-60 gamma radiation, the lethal dose was determined to be 300 Gy, while the sterilizing dose was 150 Gy for obtaining sterile adults from irradiated pupae.

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