Effect of irradiation on the quality in the males of tsetse flies (*Glossina palpalis gambiensis* Vanderplank) at CIRDES laboratory, Burkina Faso

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In order to assess the effect of irradiation on male pupae of *Glossina palpalis gambiensis*, we assessed quality parameters of the irradiated male pupae, notably the hatching rate of the pupae, the flying ability of emerged tsetse flies and survival rate of young flies in starving condition following an available quality control protocol. The fertility of male flies from irradiated pupae was also assessed through female productivity and the insemination ability of irradiated males. For this purpose 30 virgin females of 3 days old were mated with 10 irradiated males aged 6 days in breeding cages. Productivity (number of pupae) was compared to a control batch. Simultaneously to this test, other cages of 30 virgin females of 3 days old, mated with 10 irradiated males of 6 days old were followed for the insemination capacity of the irradiated males. Dissections were performed to evaluate the filling level of spermatheca of females mated with irradiated males and those mated with control males. Irradiation had no effect on pupae hatching ($p=0.083$). The fly ability rate was significantly greater in the control group than in the treated lot ($p<0.001$). Male survival from control pupae was significantly longer ($p<0.001$), with an average of 5 and 4 days respectively for the control and irradiated treatment. Female productivity was 1.67 ± 1.55 pupae and 18.93 ± 3.38 pupae, respectively, for females mated with irradiated males and females mated with control males, respectivily. The sterility rate induced in females was 89.67%. Most females had full spermatheca and spermatheca fill level was generally similar for both treatments. Ultimately, irradiation does not affect the viability of the pupae. However, it has an effect on the performance of male flies without affecting their biological quality.