

MANAGEMENT OF BLACK COFFEE TWIG BORER (*XYLOSANDRUS COMPACTUS*) (EICHHOFF) BY USE OF LURE TRAPS IN TANZANIA

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Introduction:

Black coffee twig borer (BCTB), *Xylosandrus compactus* (Eichhoff) is a relatively new and serious pest for coffee in Tanzania. It was first identified with Arabica coffee in Machame, Kilimanjaro region in 2015 and with Robusta coffee in Minziro, Kagera Region in 2017. The host of BCTB includes 225 plants worldwide, for example tea, cocoa, coffee and several species of ornamentals. Symptoms of the infested twigs shows yellowing of leaves on a branch, wilting and dry of branches after a few weeks and causes a considerable damage. Two potential mechanism, the pest cause (1) mechanical damage in which the pest makes a superficial hole into the current year's twigs (Figure 1) to the phloem and (2) the introduction of the ambrosia fungus, which may be phytopathogenic. Physical removal of infested branches on coffee plants (cut off and burn or bury) remains the most reliable means of managing this pest on coffee. On the other hand, TaCRI has experience of lure trapping with berry borers (*Hypothenemus hampei*); and our interest was to check if it would work in this case too. The aim of this work was to evaluate the effectiveness of different lures using a red colour bottle trap as an alternative management practice against BCTB.



Materials/Method:

Six treatments including; Ethanol pure (99.9%), Methanol pure (99.9%), Ethanol + Methanol (1:1), Ethanol + Methanol (3:1), Methylated spirit + water (1:1) and control (water only) were applied in the field at TaCRI, Lyamungu (Kilimanjaro region) and Minziro (Kagera region). The treatments were arranged in RCBD with four replications using a water trap painted red colour. Adult twig borer trapped were counted with lures refreshed every week (seven days' interval) for three seasons (3 years) period and the trapped adult twig borer later were summarized on an excel data sheet and subjected to Analysis of Variance (ANOVA) by use of GenStat packages.

Figure 1: Bored twig with BCTB

Results/Discussion:

There were significant differences ($P \leq 0.05$) in mean BCTB trapped between Ethanol pure (99.9%), Methanol pure (99.9%), Mixture of Ethanol + Methanol (1:1), Mixture of Ethanol + Methanol (3:1). With pure alcohols, Ethanol showed to be far better than Methanol (Figure 2). Mean pest trapped was decreasing in the order; Ethanol pure (34.50) > Methylated spirit + water (25.50) > Ethanol +Methanol (3:1) (22.50) > Methanol pure (21.75) > Ethanol +Methanol (1:1) (20.00) > and control (3.75). No significant differences in mean pests trapped with Ethanol pure (34.50), Methylated spirit + water (1:1) (25.50) and Ethanol + Methanol (3:1) (22.50) was observed for the three seasons. This is in line with Msiime. 2023 from NACORI in Uganda who reported that ethanol is effective against the black coffee twig borer and it is environmentally friendly.

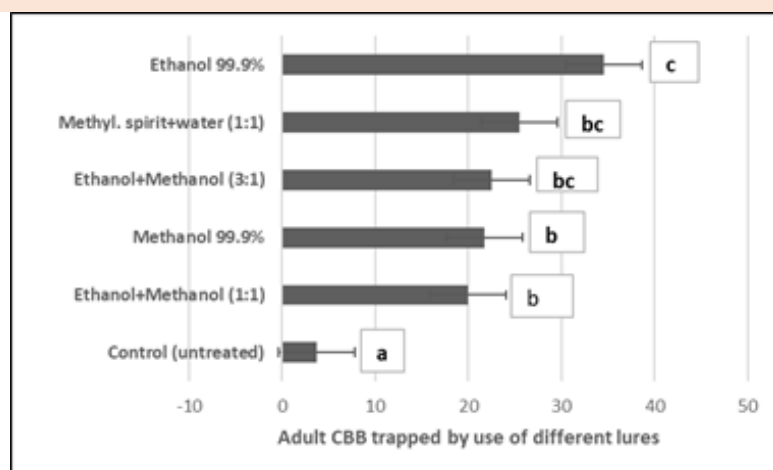


Figure 2: Mean numbers of BCTB trapped for a period of 3 years at Minziro, Kagera region and TaCRI, Lyamungu, Kilimanjaro region.

Conclusion/Perspectives:

Use of lures could be one of the management options for BCTB. Farmers can use any of the tested lures for management of the pest in the field, depending on the availability & affordability.

References:

- Magina, et al. 2018 ASIC Portland Oregon, USA, Book of Abstracts 2018, Pg. 28
- Msiime, 2023. Ethanol effective against black coffee twig borer: Researchers [<https://www.worldagroforestry.org/news/ethanol-effective-against-black-coffee-twig-borer-researchers>]