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Potential of powdered leaves of four plant species as prospective repellents against the rice weevil, *Sitophilus oryzae* L. (Coleoptera : Curculionidae)

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Powdered leaves of four plant species, *Ocimum gratissimum* (Lamiaceae), *Cinnamomum verum* (Lauraceae), *Mentha viridis* (Lamiaceae), and *Citrus reticulata* (Rutaceae) were evaluated for their repellent properties against the rice weevil, *Sitophilus oryzae* under laboratory conditions with an ambient temperature of 29 ± 20 ^{o}C and a relative humidity of 84 ± 2 %. The evaluation was aimed at generating more eco-friendly treatments suitable for post-harvest rice protection as well as a sustainable alternative to synthetic pesticides in the control of *S. oryzae*. Rice weevils were exposed to 5.0, 10.0 and 15.0 g of leaf powders admixed with rice grains in laboratory bioassays. Repellency assays were conducted using a modified cup bioassay. All the treatments caused significant ($p < 0.05$) repellency of adult *S. oryzae* than the control. Powdered leaves of *M. viridis* at 15.0 g dose elicited the highest and the strongest repellency (90 %) in the weevils when compared with the other treatments. However, the weevils also demonstrated considerably high rates of repellency to the other three plants, *O. gratissimum*, *C. verum* and, *C. reticulata* which were 75 %, 75 % and 70 % respectively. The overall results indicated that repellency rate increased proportionately with the increase of the dose of the powder. A similar trend of repellency was also observed with time. However, the effects of all plant powders on the insects were highest within six hrs post-treatment. These results provide a scientific rationale for the use of four powdered plants *M. viridis*, *O. gratissimum*, *C. verum* and, *C. reticulata* as effective grain protectants against the rice weevil.