Peanut Oil and Lemongrass Essential Oil Spray: A Novel, Cost-Effective and Eco-Friendly Paederus fuscipes Control Agent

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This research proposes Peanut Oil Lemongrass Essential Oil Spray (P.O.L.E.O.S.) as a novel, cost-effective and eco-friendly insect control agent. GC-MS analysis showed that a-Citral and B-Citral were the main compounds identified in lemongrass essential oil, while linoleic acid and oleic acid were the main fatty acids identified in peanut oil. The attraction and paralytic effects of P.O.L.E.O.S. on Paederus fuscipes were studied. Experiments consisted of 60 bioassays with three different paralytic treatments and two control treatments. Paralytic treatments with volumes of 0.2mL each were sprayed on cotton and concentrations ranging from 15g dm-3 to 40g dm-3 at 5g dm-3 intervals. Results showed that paralytic effectiveness increased with concentration for all treatments. Peanut oil bioassays effectively attracted and paralyzed all the P. fuscipes specimens starting from 40g dm-3. Lemongrass essential oil paralyzed all the attracted insects at 40 g dm-3. P.O.L.E.O.S. bioassays effectively attracted and paralyzed all the P. fuscipes specimens starting from 35g dm-3. Paralytic effects will be absent after 24 hours for all three treatments. 2-way ANOVA of all three treatments resulted in $p = 0.000$, $F(2,36) = 44.273$, demonstrating the use of P.O.L.E.O.S. as a target specific insect control agent. This study shows that P.O.L.E.O.S. can effectively prevent the problems caused by Paederus fuscipes, benefiting humanity while also being safe for the environment.

Awards Won:
Fourth Award of $500