

Science investigatory project analysis



**ASSIGN
BUSTER**

Procedure: 1. Peel the skin of the garlic. 2. Chop the garlic into small pieces by using mortar and pestle. 3. Prepare the charcoal burner by making a fire on it. 4. Wash the pandan leaves. 5. Boil the pandan leaves , while waiting for the pandan leaves to be boiled . 6. Add water to the chopped garlic and mix. 7. Distill the garlic the garlic to get the extract. 8. Separate the pandan leaves from it`s extract. 9. Pour the pandan leaves extract to a glass and mix it with the garlic extract. 10. Mix the eucalyptus oil and the olive oil and mix it ! Transfer your product in a clean sprayer and there you go, Natural Insect Repellent.

Illustration:

Recommendation : There are some natural mosquito repellent ideas such as cinnamon oil, castor oil, or clove oil. These do work, but are also very strong odors, and they can stain. Commercially available, all-natural mosquito repellents are formulated and tested to not stain or burn your skin. You should let the companies do the trial and error research to figure out what works best. Just because these products are completely natural, it doesn't mean that they are harmless.

Always test any chemical or solution on your skin or a child's skin to test for allergic reactions or irritation. Different people will react differently to any substance – natural or not. Combine all-natural mosquito repellents with strategies to avoid mosquitos. In general, mosquitos are attracted to dark clothing, floral or fruity perfumes, and by moist skin. Also, mosquitos will avoid the hottest part of the day, and they come out when the temperatures cool. The best way to protect yourself from mosquitos is to avoid them. Any

liquid or spray can stain clothing. With deet, stains are guaranteed , but you should still take care with the all-natural products on clothinga.

Abstract:

Seven compounds and fractions prepared from pandan leaves (*P. amaryllifolius*) were evaluated for repellent activity against *Blattella germanica* (L.) using a modification of the linear tract olfactometer. 2-Acetyl-1-pyrroline, pandan essence and the hexane-pandan extract were repellent (65-93 % repellency) at all concentrations tested; the acetone-pandan extract was attractive at increasing concentrations (minimum of 62 % attractancy); artificial pandan flavouring and the dichloromethane-pandan extract gave erratic results. Undiluted crude aqueous pandan extract displayed an attractancy of 62%. The potential of *P. amaryllifolius* as a natural and environmentally friendly pest management tool is discussed.

Conclusion: This study has only covered the repellent effects of various components found in the candidate plant, *P. amaryllifolius*, but not on the intact plant. Although both attractive and repellent compounds are present in the plant, it is likely that the proportion of repellent components in mature pandan leaves outweighs that of its attractive counterparts. Hence, bunches of pandan leaves can possibly work well for taxi drivers as the leaves are usually left to dry out at the back of the taxi, evaporating the water and volatile compounds in the leaves.

Since leaves are contained within the small confines of the taxi, its scented, cockroach-repellent volatile compounds can permeate the air and possibly be concentrated enough to repel cockroaches. However, it might be more

practical to optimize the repellent components of pandan leaves for use in some instances. Repellent components of pandan leaves, such as 2AP, hexane-pandan extract and pandan essence, could be concentrated to their optimum working concentrations and periodically sprayed onto the walls and floors of warehouses and ships to repel cockroaches. As the repellent is non-toxic, there are also good prospects to develop cockroach-repellent spray cans for domestic use.

Dark corners, cabinets and drawers, especially those in the kitchen, could be coated with a layer of repellent to ward off the insects. However, two factors influencing the effectiveness of the fractions, volatility and persistence, were not taken into account in this study. Perhaps more studies can be done to quantify the effects of test chemicals over time to give them more practical values.

Although by no means the most efficient for this purpose, a natural, non-insecticidal means of combating cockroaches is preferred in the face of reported undesirable effects of many synthetic repellents such as deet (Reynolds, 1989) on humans and the environment. Furthermore, *P. amaryllifolius* has the secondary benefit of adding visual and olfactory pleasure to humans. It would therefore be worthwhile to investigate further into this plant for scented cockroach-repellent components for possible commercialisation.