

Southridge private high school



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Southridge Private High School Antipolo City “ Feasibility of cigarette butts and garlic as insecticide” Submitted by: Satchel Calah Beltran Submitted to: Mrs. Ma. Fatima L. Montoya Introduction: Cigarette butts ends up as a litter. It can be found on the streets, public places and even beaches. To name a few, it had been a huge problem eliminating these litters because it creates pollution. Traditional butts are made of “ synthetic polymer cellulose acetate” and never degrade, only breaking apart after roughly 12 years. Yet within an hour with contact of water, cigarette butts can begin leeching chemicals such as cadmium, lead and arsenic in the marine environment. And that’s not counting for the fact that they also end up in the intestines of fish, whales, birds and other marine animals. Background of the study: Nicotine is an Alkaloid found in the night shade family of plants which constitutes approximately 0. 6% to 3% of dry weight of tobacco with biosynthesis taking place in the roots and accumulating in the leaves. It functions as an anti-herbivore chemical with particular specificity to insects; Therefore, nicotine was widely used as an insecticide in the past and currently analogs such as imidacloprid continue to be widely used. In low concentration the substance acts as an stimulant in mammals and in the main factor responsible for the dependence forming properties of tobacco smoking. Objectives: The researcher wants to determine the following: 1. If it is possible to produce an insecticide from cigarette butts and garlic as a mixture. 2. If it is possible to produce an insecticide from cigarette butts and garlic alone. 3. If it is possible to kill ants with the insecticide. Significance of the study: This study is important because of the overwhelming concern for the litters and pollution that cigarette butts give. It is important that we know the possible effects of it if we use it as an insecticide. Not only we save of

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money from commercial type insecticides, but also, we help the earth by going green and recycling. Scope and limitations: This insecticide making process will focus on the effectiveness of cigarette butts and garlic as an insecticide. In addition to recycling, this study aims to let people know that cigarette butts can help in saving one's money. Review of Related Literature

Foreign Studies Garlic-based insecticide Researchers from Montreal Botanical Garden made an insecticide from garlic. The procedures go like this. Place a clove of garlic in a blender and add 500 ml of water. Blend until smooth. Pour the liquid into a container, cover and let sit for 24 hours. Filter through cheese cloth or a strainer. Dilute with 4 liters of water and add one or two drops of insecticidal soap to make the mixture adhere to plant leaves. Spray on plants infested with spider mites, whiteflies or aphids. Homemade Pesticide for Snails and Slugs Diatomaceous earth is a powder-like dust made of tiny marine organisms called diatoms. It is effective on soft-bodied insects as well as snails and slugs. Just spread it on top of the soil and it works by cutting and irritating these soft organisms yet is harmless to other organisms. You can also put out shallow dishes of beer to trap snails and slugs. Foreign Literature Nicotine Insecticide Cedric Briens and colleagues note that concerns about the health risks of tobacco have reduced demand and hurt tobacco farmers in some parts of the world. Scientists are looking for new uses for tobacco. One potential use is as a natural pesticide, due to tobacco's content for toxic nicotine. For centuries, gardeners have used home-made mixtures of tobacco and water as a natural pesticide to kill insect pests. A "green" pesticide industry based on tobacco could provide additional income for farmers, and as well as a new eco-friendly pest-control agent, the scientists say. They describe a promising way to convert tobacco

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leaves into pesticides with pyrolysis, That process involves heating tobacco leaves o about 900 degrees Fahrenheit in a vacuum, to produce an unrefined substance called bio-oil. The scientists tested tobacco bio-oil against a wide variety of insect pests, including 11 different fungi, four bacteria, and the Colorado potato beetle, a major agricultural pest that is increasingly resistant to current insecticides. The oil killed all of the beetles and blocked the growth of two types of bacteria and one fungus. Even after removal of nicotine, the oil remained very effective pesticide. Its ability of the oil to block some but not all of the microorganisms suggests that tobacco bio-oil may have additional value as a more selective pesticide than those currently in use, the report indicates.

Methodology Materials: 1. 20g Cigarette Butts 2. 20g garlic 3. Beakers 4. Graduated cylinders 5. Iron clamp 6. Iron Stand 7. Iron ring 8. Match 9. Bunsen Burner 10. 75 ml, 50 ml, two 25 ml water 11. Stirrer 12. 4 vials 13. Strainer 14. Ants

Procedures: Used cigarette butts were gathered from the streets. The garlic was bought from the market. The cigarette butts and garlic were then weighed, 5 grams of each were used in the experiment. Then, the researcher measured 75ml, 50ml and two 25ml of water. The garlic was crushed using mortar and pestle. Next, the cigarette butts and garlic were combined with 75 ml of water then boiled. The extract was then strained and was placed in a vial. The same procedure was done for the other mixture with 50ml of water. Next, the researcher boiled garlic with 25 ml of water. Also, the cigarette butts with 25 ml of water were boiled. It was then strained and placed in a vial.