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PEST AND INSECT REPELLENT MICROCAPSULES OF TOOLS

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Annotation: This study aimed to isolate citrus (Citrus aurantium) essential oil containing components with insecticidal activity and to test its insect repellent effect.

Keywords: Microcapsule, capsule, Citronella, textile.

Introduction

In a study by N'guessan et al, DEET (N, N-diethyl-meta-toluamide) is a microcapsulated chemical insecticide.The encapsulated DEET is gradually removed from the microcapsule and it has been observed to kill environmental insects for at least 6 hours. They showed that these microcapsules were used in clothing.

Miro Specos et al Citronella herb (lemongrass) essential oil microcapsulated and applied to the surfaces of cotton clothing in textiles.Microcapsulated textile product surfaces citronella oil ethanol it was observed to be more effective than its solution for more than 3 weeks. In the study of Anitha and others, 100% polyester fabrics were lemon oil it is covered with essential oil and their anti-insect properties are evaluated. As a result of the tests, a microcapsulated polyester fabric with lemon oil is high it turned out that it has insect repellent properties.

Nelson in his study to combat various pests applied insecticide and ascaricide to textile surfaces. To apply exposure of the user to overdose of dangerous chemicals which do not do and can be fatal to insects microcapsulation technology has been applied. The result included ascaricide long-term sheets were produced.

Faulde and Nehirng in their study caused by flies and insects DEET on sheets, permethrin and to protect against diseases such as malaria etofenprox added microcapsules containing. Acquired textiles the mosquito and insect activity of their surfaces has been tested and is the best found that the effect was DEET.

Sukumaran et al found microcapsules containing permethrin in their studies those who applied to military fabrics. According to the results of the test, it contained permethrin the insect repellent effect of textile surfaces is 93.3% and insect activity has been found to last up to 55 washes.Insecticides and pests (sprays, commercial products, microcapsules).

Synthetic repellents

N, N-diethyl-meta-toluamide (DEET). DEET is a fly known to this day, the most effective among insects and insecticides are those that have a light yellow color it is one of the ingredients. It can cause mosquitoes, insects and diseases is a chemical developed to kill pests. first synthesized in 1954 by McCabe et al.

DEET contains 4% to 100% DEET for direct application to human skin takes, DEET insecticides with a concentration of 50% to 100% recommended in a dangerous environment that affects people. USA Submitted to the Environmental Protection Agency (EPA in studies, DEET body from flies, insects and pests holding for 3-8 hours, depending on the concentration used in the products it is noted that he has the ability.

New DEET analogs and DEET's combinations with insecticides long-term repellent against insects is being developed to ensure impact. 80 in recent studies% Formulas containing

the DEET chemical repellent are A. aegyti ga about 14 it has a repellent effect during the hour, and the formula with 7% is less than 4 hours has a reversible effect over time.

DEET synthesis begins with m-toluic acid. Basic in both ways the mechanism is nucleophilic tetrahedral substitution, with the catalyst being pyridine in the first method and the second method is dimethylformamide. The effect of the catalyst in the first method is nucleophilic in the case of catalysis, the second method produces a new reactive species.

Permethrin

Permethrin is a synthetic chemical such as DEET. She is the most for outerwear an ideal means of killing flies, insects and pests. Permethrin it is a very popular chemical among hunters, campers and adventurers. At home and outside, in animal shelters, pets and clothes can be used.

Repelent chemical (e.g.), which is applied directly to the skin today, DEET) with permethrin added to the textile surface of flies such as malaria effectively protects against diseases transmitted by. However, the insects the resistance to permethrin also increases over time.

Preparation of microcapsules

First, the gelatine solution, which is a carrier polymer solution, is the polymer's at a pH value higher than the gelling temperature and a pH in which coaservation does not occur prepared in value. Later 4 ml C.aurantium oil, its main substance,this spread in an aqueous polymer solution. Insoluble in water C.aurantium oil 5 to dissolve the drops in an aqueous gelatin polymer solution and form an emulsion% span 80 is added. Using a mechanical mixer to form an emulsion achieves (MTOPS Model MS3040). The mixer speed is set to 1500 m / min.

For gelatin - (gum arabic) polymers, complex coaservate yields pH since the value ranges from 4.0 to 4.5, adjusting the pH to the acidic value (pH 4 through the system itself is divided into two liquid phases. Coaservate the first phase has a very high concentration. Another phase balanced solution it has a low polymer concentration. It is known that by this method the microcapsule the basis of the formation of small drops on the surface of the nuclear material of polymers is the accumulation of form.

C. aurantium - containing microcapsules can be found at temperatures of and.It is observed that it is possible to prepare successfully at a mechanical mixer speed of 1500 rpm.Obtained optical microscope images to the same morphological and rational diameter distribution ega proves the formation of microcapsules. Using an optical microscope and SEM 100% cotton, 100% polyester and 100% acrylic with shrinkage method on fabrics it was observed to have been successful.

FTIR characteristic, as well as,created by the carbonyl groups in the gelatin of microcapsules proof of successful transfer to the surface of the fabric with peaks. Extraction made C. volatile components of microcapsules with aurantium oil to determine, GC-MS analysis was carried out, and the highest component is the level of 39.14% with D-identified as limonene.

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