

TECHNOLOGY OFFER

BIO-PESTICIDE AGAINST SWARMING LOCUSTS

During outbreaks, gregarious locusts devastate enormous areas, in particular in Africa, the Near East, Middle East, Far East, South-West Asia, North and South America and Australia. Traditionally, chemical pesticides are used to control the outbreak of gregarious locusts in the field. However, in recent years chemical pesticides were discredited because of their negative effects on human health and harmful side effects on the ecosystem. In recent decades, the public awareness about the amount of residual chemicals that persist in food, ground water and the environment increased. Therefore, the need for alternative methods of locust control is still high.

BACKGROUND

As a possible alternative to chemical pesticides, fungi targeting certain locust species were proposed by the FAO (Food and agriculture organization) and the WHO (world health organization). Major drawbacks of using fungi for the control of locusts come with the laboratory equipment that is needed to check for the biological activity of the spores and the problems arising with the dilution of spores in diesel and gasoline for spray treatment. Another drawback of fungus treatment comes with the amount of time it takes to harm locusts (about two weeks).



Locusts after Linseed and Natron treatment
© Picture: Uni Graz/Abdelatti

TECHNOLOGY

In a recent invention of the Uni Graz linseed oil, backing soda and several essential oils were mixed to create a formulation that harms all developmental stages of locusts after a single spray treatment. In contrast, mealworm beetles treated in the same way were still alive and behaved normally after 18 days. This innovative oil emulsion consists of an aqueous solution of hydrogencarbonate, linseed oil (made from flax *Linum usitatissimum*), caraway oil (from *Carum carvi*), orange peel oil and wintergreen oil (*Gaultheria procumbens*). After a single spray treatment, more than 80% of individuals belonging to two gregarious locust species died within 24 hours and the remaining individuals died within the next 6 hours. In contrast, this oil emulsion sprayed on wheat grass seedlings did not affect their growth much, even when grass was exposed to natural sun light.

ADVANTAGES

- This bio-pesticide is rather cheap and harmless for humans
- This oil emulsion can be easily manufactured in an inexpensive process
- Standard spray devices can be used to spray it
- The oil film does not affect grass growth much
- It can be combined with other biological agents (e.g. fungi)



www.wtz-sued.at

KEYWORDS:

BIOLOGICAL PEST CONTROL
LINSEED OIL
ORANGE (PEEL) OIL
LOCUST CONTROL
BIOPESTICIDE

INVENTORS:

HARTBAUER, MANFRED
ABDELATTI, ZAINAB

COOPERATION OPTIONS:

LICENSING AGREEMENT
RESEARCH COOPERATION
AGREEMENT

DEVELOPMENT STATUS:

LAB TESTS SUCCESSFUL

STATUS OF PATENTS:

EUROPEAN PATENT FILED
(EP 18162806.6)
INTERNATIONAL PATENT FILED
(PCT/2019/056709)

PROJECT NUMBER:

2017_03

CONTACT:

Gernot Faustmann

University of Graz
Research Management
Universitaetsplatz 3
8010 Graz
T: +43 316 380 3994
gernot.faustmann@uni-graz.at
www.uni-graz.at

