Ecofriendly synergists for insecticide formulations

From 2013-10-01 to 2015-12-31, closed project | ECOSYN Website

Project details

<table>
<thead>
<tr>
<th>Total cost:</th>
<th>Topic(s):</th>
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<tbody>
<tr>
<td>EUR 1 323 100</td>
<td>SME-2013-1 - Research for SMEs</td>
</tr>
<tr>
<td>EU contribution:</td>
<td>Funding scheme:</td>
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<tr>
<td>EUR 887 000</td>
<td>BSG-SME - Research for SMEs</td>
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</tbody>
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Coordinated in:
Italy

Objective

Insect pests cause significant damage to agricultural crops and transmit several important diseases of humans and animals. Chemical insecticides have been used to control insect pests for many decades and remain essential to ensure a supply of affordable food and as part of disease vector control for the foreseeable future. Unfortunately, the world-wide use of synthetic insecticides over many years has led to increased resistance to insecticides and contributed to environmental contamination. One way to reduce insecticide use without compromising control is to use a synergist in combination with an insecticide. Synergists are themselves nontoxic but act by increasing the effectiveness of the insecticides they are used with. They do this by inhibiting the metabolic systems in insects that detoxify insecticides. The goal of this project is to develop ecofriendly synergists for use in formulations with insecticides, both in agriculture and in Public Health, enabling a reduction in the amount of insecticidal active applied, and thereby reducing the adverse effects of these insecticides on beneficial insects such as bees. On the basis of in-depth experimental analyses of the interactions of the known synergist piperonyl butoxide with metabolic enzymes in pest insects, new molecular structures will be designed, synthesized and evaluated on pest and beneficial species using laboratory bioassays and field trials. In addition, the synthesis process to manufacture these synergists will be evaluated with the aim of achieving an industrially and economically feasible process. Finally strategies will be developed that use the novel synergists to enhance the control of insect pests while preserving beneficial insects. As such this research has significant scientific, economic, and social impact as part of sustainable food production and disease control and will enhance the partners’ competitiveness in this important industry by means of global patent and license agreements.

Related information

Report Summaries

Final Report Summary - ECOSYN (Ecofriendly synergists for insecticide formulations)
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