

## Use of Biotechnology in Pest Management **Isabella Raposo\***

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### Commentary

The need to scale back or eliminate the employment of standard chemical pesticides, each in agriculture and biology, has fostered a research for different merchandise and methods that have a far lower impact on human health and therefore the atmosphere. Present biological management agents, plant-derived target-specific pesticides, and pest-resistant plants obtained through standard breeding area unit among the known and most accepted alternatives. However, as a result of effective bio pesticides, cuss-specific compounds and resistant crops or trees are not continuously without delay offered for the management of a given pest, scientists have controlled the facility of biotechnology in a shot to enhance the effectualness of existing bio control agents, to spot target sites in cuss insects and to introduce resistance genes into host plants.

Given the first and noble goal of those efforts i.e., the event of environmentally friendly cuss management tools, it appears somewhat ironic that the merchandise of cuss management biotechnology area unit the topic of larger scrutiny and concern than their extremely toxicant chemical predecessors, a minimum of at the time the latter were initial being thought-about for registration. this example apparently reflects a heightened environmental awareness, each within the general public and among environmental support teams, that has its roots in numerous publications that started mentioning, within the 1960's, the threats display by chemical pesticides. At the side of this awareness could be a perception that justifiedly or incorrectly - cuss management tools derived from biotechnology carry a lot of risk for the atmosphere than standard merchandise.

The purpose of this paper is not to review recent biotechnological progress about forest cuss management, however rather to look at the varied hurdles registration, property, public acceptance, business potential presently facing cuss management tools developed through biotechnology. Stress is placed on two chosen insect management methods, together with some comparisons of the problems that area unit specific to trees and therefore the forest atmosphere with those specific to crops in agro ecosystems. I conjointly explore ways that of facilitating the preparation of those cuss management tools

Biorational pesticides could also be outlined as chemicals that aim at disrupting a physiological operate specific to insects or a bunch of insects. Though the active ingredient of those pesticides could be a matter, their insect specificity and mode of action (they

typically act through a non-toxic mechanism) create them much more environmentally friendly than standard chemical pesticides. A number of these molecules area unit obtained from natural sources or area unit artificial analogs of the natural compounds. In these instances, they are usually spoken as "biochemical pesticides". Others, however, could bear very little likeness to present substances however area unit chosen on the premise that they inhibit or antagonize an organic chemistry operate specific to insects. The identification of such compounds will be greatly motor-assisted by biotechnology, whereby the genes encryption insect proteins believed to be appropriate targets for inhibition (e.g., enzymes) or antagonistic interactions (e.g., internal secretion receptors) area unit cloned and used for the event of in vitro screening systems. wherever the three-dimensional structure of the super molecule will be determined, computer-assisted style will be wont to facilitate determine appropriate inhibitors associate degreed antagonists in an approach like that presently utilized for drug discovery.

A good example of a recently developed and registered biorational pesticide is tebufenozide, that disrupts the molt of caterpillars by targeting the receptor of the molt internal secretion, ecdysone. though this compound is particular to the *Lepidoptera*, it is so much less specific than the *Baculoviruses* mentioned above and, during this respect less environmentally fascinating than *Baculoviruses* nonetheless, as a result of it doesn't return beneath the "GMO" class and, as such, doesn't carry such risks as genetic exchange of foreign insecticidal genes with alternative present organisms it created it through the registration method in North America. Thus, it will be seen that if biotechnology will be wont to facilitate determine target-specific cuss management molecules, these could have a larger probability than recombinant baculoviruses of

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changing into registered chop-chop. Additionally, they are going to probably show a degree of target specificity intermediate

between standard chemical pesticides and baculoviruses, conferring on them a somewhat higher business potential.