

Insecticides Design Using Advanced Technologies

In the past, insecticide development has been guided mostly by chemo-rational and bio-rational design based on understanding of the physiology and ecology of insects and crops. A limitation in each new class of compounds is the evolution of resistance in populations of key pests, which ultimately leads to control failures. This phenomenon and the desire to produce more selective and biorational compounds serve as the driving force to develop advanced technologies for insecticide design. Among the highlights of this book are the use of nanotechnology to increase potency of available insecticides, the use of genetic engineering techniques for controlling insect pests, the development of novel insecticides that bind to unique biochemical receptors, the exploration of natural products as a source for environmentally acceptable insecticides, and the use of insect genomics and cell lines for determining biological and biochemical modes of action of new insecticides.

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