Pest Management in 21st Century: Roadmap for Future

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ABSTRACT The twentieth century has witnessed rapid strides in the development and refinement of various biopesticide based pest management tactics, viz. bacteria, fungi, viruses, nematodes, natural plant products, etc. However, there is still ample need for the models which are easily accessible, convenient to develop and could be economically commercialized. Though to achieve this involves complex processes, yet it is obvious that concrete structured strategies need to be planned that require a complete roadmap for the development and commercialization of biopesticides. The advent of gene technology has added a new dimension to pest management on one hand but on the other it has generated several socioeconomic, ecological and ethical issues. Integrated pest management (IPM) programmes have been developed for various agricultural crops, but their widespread adoption at the farmers’ level remains far from satisfactory. Therefore, what is required is to select an appropriate agent which has the potential to control the pest; to investigate the feasibility of the product on the larger scale; to maintain the quality control; to strategize the implementation protocols in any IPM model and finally the commercialization. The effort through this review is to discuss all these aspects in order to draw a future roadmap to achieve sustainable crop protection in the twenty-first century.

KEY WORDS: Integrated pest management, biopesticides, biocontrol, transgenic crops, semiochemicals, roadmap