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Methods of application of biopesticides. Methods of quality control and Techniques of biopesticides. Impediments and limitation in production and use of biopesticide



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APPLICATION OF BIOPESTICIDES

- Biopesticides are typically microbial biological pest control agents that are applied in a manner similar to chemical pesticides. In order to implement these environmentally friendly pest control agents effectively, it can be important to pay attention to the way they are formulated and applied.



SAFETY TESTING

Safety testing of biopesticides to be done to secure

✓ **Non-target Vertebrates**

Mammals^a

Birds(two species)^b

Fresh water fish^c

✓ **Non-target invertebrates**

Terrestrial Invertebrates^d

Soil invertebrates^e



THREE TIER SAFETY TESTING

- The **first tier** is designed to expose animals to very severe acute tests with the microbial agents such that the agents can be considered safe if all results are negative.
- Any positive result leads to either rejection of agent or to qualification of the effect in the **second tier test**.
- These results in turn lead either to hazard analysis resulting in a decision that the agent is safe without limitation to label restriction, to long term tests on **third tier**.



- **Tier 1st test** includes acute oral, inhalation, intra-peritoneal, dermal and ocular application plus allergenicity tests and mutagenicity screens.
- **Tests in Tier 2nd** quantify the effects and include extended mutagenicity tests.
- **The 3rd tier** comprises teratogenicity and long term tests.



Advantages of biopesticides

- ✓ Inherently less harmful and less environmental load,
- ✓ Designed to affect only one specific pest or, in some cases, a few target organisms,
- ✓ Often effective in very small quantities and often decompose quickly, thereby resulting in lower exposures and largely avoiding the pollution problems .
- ✓ When used as a component of Integrated Pest Management (IPM) programs, biopesticides can contribute greatly.



Disadvantages

- Slow effect
- Lack persistence and wide spectrum activity
- Rapidly degraded by UV lights so residual action is slow.
- Seasonal availability of plants products indicates the needs for storage.
- They are not available easily
- Poor water solubility and generally not systemic in nature
- All products applied followed by growers have not been scientifically verified.



Conclusion

- Biopesticides are typically microbial biological pest control that are applied in a manner similar to chemical pesticides.
- Available in different formulations
- Also used to control soil borne and seed borne fungal pathogens
- Disadvantages of them are, high specificity, slow speed of action and their requirement of suitable condition for their survival.
- Eventhough, biopesticides are best for controlling the pests of agriculture then the chemicals
- Therefore there should be more works on production on biopesticides and encourage people to use biopesticides to control the pests.