

CORRESPONDENCE

instance, mere enrichment of natural enemy populations does not necessarily support effective pest control. Until we fully realize the ecosystem functioning, it would be unrealistic to expect that we will ever be in a position to be totally confident about the safety of biocontrol. In developing conventional biocontrol techniques, what we have been doing is first experimenting with a segregated portion, in most cases one link of the complex ecosystem food web and then to devise a mechanism to control the pest or pathogen.

What we have not considered here is the other interactions of the link that were separated out from the food web, which is why we would not be confident about the safety of biocontrol agents. Thus, the development of large-scale biocontrol strategies requires a more holistic ecosystem approach. However, studying completely the complex food webs in nature and then formulating mechanisms for harmless biocontrol would not be an easy task and hence apparently unrealistic. So, is there a shortcut to do safe biocontrol in an ecosystem approach? Yes, of course, recent microbial biotechnological advances show that there is a way.

It is a well-known fact that the collapse of soil microbial communities, and hence biodiversity in agroecosystems and managed ecosystems in general, due to chemical inputs and tillage results in the numerous issues threatening sustainability. In this, emergence of pests and pathogens is one of the major problems. Direct application of developed microbial communities in biofilm mode called biofilmed biofertilizers (BFBFs) has been shown recently to start restoring depleted tropical cropland soils, soon after their application, within 1–2 months, with better yields⁴. Major role of BFBFs in the soil is to increase biodiversity, thus improving ecosystem functioning and sustainability. Biofilm actions of the BFBFs tend to break dormancy of microbial, plant and animal seed banks in the soil, thus increasing biodiversity of the ecosystems (G. Seneviratne, unpublished). This has evidently resulted in natural emergence of biocontrol agents of common pests⁴ and pathogens (G. Seneviratne, unpublished), thus reducing infestation. In organic farming too, there are several examples to show that increased biodiversity helps biocontrol in the long run^{5,6}. However, the use of BFBFs is a quick and easy remedial

measure for safe biocontrol. This is a novel biotechnology; therefore its further research and adoption as an alternative to unsafe conventional biocontrol should be initiated soon.

1. Pratt, P. D. and Center, T. D., *BioControl*, 2012, **57**, 319–329.
2. Simberloff, D., *BioControl*, 2012, **57**, 263–276.
3. Prithiviraj, B. and Singh, U. P., *Curr. Sci.*, 1997, **73**, 643–644.
4. Seneviratne, G., Jayasekara, A. P. D. A., De Silva, M. S. D. L. and Abeyssekera, U. P., *Soil Biol. Biochem.*, 2011, **43**, 1059–1062.
5. Crowder, D. W., Northfield, T. D., Strand, M. R. and Snyder, W. E., *Nature*, 2010, **466**, 109–112.
6. Vandermeer, J., Perfecto, I. and Philpott, S., *BioScience*, 2010, **60**, 527–537.

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Research projects funding

We read the letters of Gowrishankar¹, Balasubramanian² and Vijayan³ on processing of applications for R&D projects. Our experience is also similar. The time taken for processing various R&D project proposals by funding agencies has been 1–2 years because of the unnecessary delays by the Administration and Finance departments. Even after final sanctioning of the project, the releasing of funds from the Finance Department takes a long time.

We feel that the sanction itself is taking a long time because of undue delays and the procedures adopted by funding agencies. It is understood that the proposal is referred to an expert committee for sanction or otherwise. After the expert committee sends its recommendations, there should not be any delay

beyond about 2–3 months. After that the administrative and financial scrutiny is not really called for. This scrutiny puts the entire recommendations of the expert committee fruitless. As it is well known, unless a project proposal is processed within a reasonable period of 3 months, there will be many difficulties in organizing the processing, and execution and implementation by the applicants who have requested for project funding. We feel that no proposal should take more than 6 months for sanction or approval and funds release after the recommendations of the expert committee are received. Sometimes constitution of the expert committee and its meeting may take a long time. But efforts should be made to avoid this. Otherwise the researchers will find it difficult to wait for this unneces-

sary delay in receiving funds. This results in slow progress of research in the country.

1. Gowrishankar, J., *Curr. Sci.*, 2012, **102**, 1499.
2. Balasubramanian, D., *Curr. Sci.*, 2012, **103**, 355.
3. Vijayan, M., *Curr. Sci.*, 2011, **100**, 815–816; 2011, **101**, 605–606.

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