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Image: Citrus Research International (CRI)

BIOPESTICIDES

A Quarterly Newsletter of the ICGEB Biopesticides Group

The Southern Africa Biopesticides Project

Residue mitigation studies in Kenya and Tanzania: The project is conducting two studies to evaluate the efficacy of selected biopesticides as potential alternatives to late-season pesticides contributory to residue violations, with the overall goal of enhancing compliance with Maximum Residue Limit (MRL) requirements in export markets. Phase 1 of the Kenyan study (focusing on mango) concluded in September 2022, with Phase 2 planned to begin late November / early December 2022. The Tanzanian study (focusing on avocado) is planned to begin in early October 2022, and will extend over two growing seasons, ending August 2023.

Residue mitigation training: Training, on both the field and laboratory components of the residue mitigation studies, will be held in Nairobi, Kenya from 31 October – 4 November 2022. The trainees are from key governmental institutions from Botswana, Kenya, Mozambique, South Africa, Tanzania, Zambia and Zimbabwe. Additional participants/ observers will include a representative from the Common Market for Eastern and Southern Africa (COMESA), two members of the Project's Advisory Board, as well as the Project's Manager and Programme Specialist.

Regulatory harmonisation: The project's Regulatory Expert and Technical Working Group (TWG) have continued to revise a draft working document towards the development of a biopesticide regulatory framework for the Southern Africa region. The working document is in its third draft, which is now to be presented to the Southern African Pesticide Regulators Forum (SAPReF), for further consideration.

ICGEB signs sponsorship agreement with CABI

The ICGEB (under the auspices of its Biopesticides Group's STDF-funded project, *Enhancing trade through regulatory harmonisation and biopesticide-based residue mitigation in the SADC region*) has signed a sponsorship agreement with the Centre for Agriculture and Bioscience International (CABI). As a sponsor, ICGEB supports the maintenance of a database and open-source website (the **CABI Bioprotection Portal**) that serves as a global information resource of registered biological control products; to help users identify, source and correctly apply biological products for the management of crop-pest problems.

"One of the challenges preventing the widespread use of biopesticides remains the dearth of information regarding products that are already available in the market. This free web-based resource – accessible via smartphones, laptops and desktops – will go a long way towards addressing this challenge, and hence promote the registration, commercialisation and use of biopesticides by growers." – Dr. Dennis Ndolo, Group Leader, ICGEB Biopesticides Group.

Web address: https://bioprotectionportal.com/

The database is useful to, among others, i) growers and advisors who need current and reliable information, on-demand, regarding the availability and correct use of effective, lower toxicity products that are registered locally and meet market requirements; ii) growers who are looking to replace the use of some chemical pesticides with biological products to meet market/export standards, or simply to increase the range of biological products that they currently use; iii) biocontrol manufacturers who are looking to promote wider uptake of their products; iv) governmental regulators (pesticide registrars) who require information on registered products in neighbouring countries; v) and private sector decision-makers, e.g. stakeholders working with outgrower schemes, cooperatives and organisations operating voluntary certification schemes. This partnership will also see the biopesticide products registered in the STDF project countries listed on the Bioprotection Portal.

"The surge in pest infestations globally – partly attributable to climate change – has resulted in a significant increase in the use of synthetic chemical pesticides in agriculture. Overuse of pesticides results in potentially problematic residue levels in harvested produce, adversely impacting access to valuable export markets. The promotion of non-residue forming pest control options including biopesticides, such as is being done under the Southern Africa Biopesticides Project, would go a long way in addressing these residue challenges."

- Mr. Willis Adero (*Research Scientist, Kenya Agricultural and Livestock Research Organisation [KALRO]*)

Baculovirus biopesticides in South Africa

Sean Moore (Citrus Research International; Centre for Biological Control, Rhodes University)

The earliest documented work on baculoviruses in South Africa was by Vic Whitlock at Wits University in the 1970s. Prof. Whitlock conducted most of his work on the nucleopolyhedrovirus of the African bollworm, *Helicoverpa armigera* (HearNPV). Roll on more than 20 years and a Citrus Research International – Rhodes University partnership has led to the identification and characterisation of numerous locally bioprospected baculoviruses, such as the granuloviruses of the false codling moth, codling moth, potato tuber moth, diamond-back moth and litchi moth. In 2004, Africa's very first baculovirus biopesticide, based on the false codling moth granulovirus, was brought to market, being manufactured by **River Bioscience**; which to this day is Africa's only baculovirus biopesticide manufacturer.

Further exciting discoveries are that of a novel codling moth granulovirus in South Africa, that has the genetic profile to overcome the now widespread resistance of codling moth to granulovirus biopesticides in Europe. Probably the most exciting discovery in modern baculovirology is that of a unique nucleopolyhedrovirus of litchi moth, *Cryptophlebia peltastica*. This virus has an unusually broad host range, potentially being virulent against all members of the Grapholitini tribe of tortricid moths, e.g. codling moth, false codling moth, litchi moth, macadamia nut borer, and oriental fruit moth.

You might be interested to know:
*The journal **Pathogens** has waived its fees – Submit your article today!*

Up-coming Events in the Biopesticide Sector

- 13-14 October 2022: *International Conference on Sustainability in Plant and Crop Protection (ICSPCP)*, London, United Kingdom.
- 16-21 October 2022: *13th Arab Congress of Plant Protection, "Plant Health for a Secure and Safe Food"*, Hammamet, Tunisia.
- 24-26 October 2022: *ABIM 2022, Annual Biocontrol Industry Meeting*, Basel, Switzerland.
- 26-28 October 2022: ICGEB Workshop "*Fall Armyworm Control: Challenges and Opportunities for the Use of Biopesticides*", Cape Town, South Africa.
- 3-4 November 2022: *International Conference on Plant and Crop Protection (ICPCP)*, Cape Town, South Africa.
- 6–13 November 2022: ICGEB Course "*Plant-beneficial function prediction of Bacillus subtilis species through NGS technology*", Sfax, Tunisia
- 13-14 December 2022: *Biocontrol & Biomes* - hybrid event. Madrid, Spain.
- 21 January 2023: *International Conference on Crop Protection and Awareness (ICCPA)*, Amsterdam, Netherlands.
- 8 April 2023: *International Conference on Crop Protection Technologies (ICCPT)*, Rome, Italy.
- 12 April 2023: *International Conference on Crop Production and Protection (ICCPP)*, Venice, Italy.

ICGEB Fellowship and Grant Opportunities

- ICGEB South African Women in Biotechnology Programme (SAWBP) PhD Fellowship. Application closing date: 12 October 2022.

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