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Resistance 2019

16th-18th September 2019

**Rothamsted Research, Harpenden,
Hertfordshire, UK**



**HERBICIDE
RESISTANCE
ACTION
COMMITTEE**



POSTERS WITH 2-MINUTE TALKS

- 1 **Survey of the prevalence of the *Rdl* resistance mutation in mosquitos from Laos**
A. K. Jones, S. Marcombe, P. Thammavong, P. Luangamath, S. Chonephetsarath, N. Phommavan, K. Lakeomany, N. Xayavong, S. Nilaxay, Z. Rahmani, P. J. Saverton, O. H. Abdullateef, J. Forward, A. E. Jacob, S. Khadam, W. Ali, C. Boer, H. Kakinuma, J. Hawkins, R. Longstreeth, N. M. Portwood, M. Smee, N. Brown, N. C. Kuyucu, S. Lechmere, G. Stieger, S. Maithaviphet, S. Nambanya and P. T. Brey
- 2 **SAP2, a chemosensory protein, is a key player in pyrethroid resistance in African malaria vectors**
V. A. Ingham, A. Anthousi, V. Douris, N. J. Harding, G. Lycett, M. Morris, J. Vontas and H. Ranson
- 3 **The importance of host specialization in insecticide resistance in the green peach aphid *Myzus persicae***
C. Plantamp, S. Benhamou, C. Mottet, E. Segura, L. Caddoux and B. Barrès
- 4 **Genetic basis of codling moth resistance to (bio) insecticides**
B. Gauffre, M. Gautier, J. Olivares and M. Siegwart
- 5 **Proposal for a simple and unified classification of pesticides**
R4P network (A-S. Walker)
- 6 **Development of a LAMP method for detecting MBC-resistant isolates of the cucurbit powdery mildew pathogen *Podosphaera xanthii***
A. Vielba-Fernández, A. de Vicente, A. Pérez-García and D. Fernández-Ortuño
- 7 **A method to translate field trial efficacy data into model parameters representing the effect of fungicides on pathogen life cycles**
I. Corkley, F. van den Bosch, J. Helps, A. Milne, D. Skirvin, H. Sierotzki and N. Paveley
- 8 **Evidence for rapid *Z. tritici* evolution and SDHI cross-resistance in Oregon, USA**
C. H. Hagerty, C. Reardon, D. R. Kroese, A. Klein and C. C. Mundt
- 9 **Enhanced metabolism to ALS inhibitors and synthetic auxin herbicides in *Papaver rhoeas***
J. Torra, A. M. Rojano-Delgado, J. Menéndez, R. de Prado and M. Salas
- 10 **Resistance benefit endowed by a double EPSPS glyphosate resistance mutation (TIPS) in *Eleusine indica***
M. M. Vila-Aiub, F. García, H. Han, A. Jalaludin, Q. Yu and S. B. Powles
- 11 **Modelling the sustainability and economics of residual herbicides vs. stacked herbicide-resistant traits**
C. Liu, P. Neve, L. Glasgow, R. J. Wuerffel, M. D.K. Owen and S. S. Kaundun

Development of a LAMP method for detecting MBC-resistant isolates of the cucurbit powdery mildew pathogen *Podosphaera xanthii*.

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Powdery mildew, caused by *Podosphaera xanthii*, is one of the most economically important diseases affecting cucurbit crops in Spain. Chemical control is the most efficient management of the disease; however, *P. xanthii* isolates resistant to multiple classes of site-specific fungicides have been reported in Spain. In previous studies, resistance to the Methyl Benzimidazole Carbamates (MBCs) fungicides was found to be caused by the amino acid substitution E198A on β -tubulin. To detect MBC-resistant isolates in a faster, efficient and specific way than the traditional methods, a loop-mediated isothermal amplification (LAMP) system was developed. Three sets of LAMP primers were designed and tested; however, only one set was optimized specifically to distinguish the E198A mutant genotype. The amplification products were visualized using gel electrophoresis and hydroxynaphthol blue (HNB), an azo dye that turns from violet to sky blue if the results were negative (E198) and positive (A198), respectively. In addition, to confirm that the amplified product corresponded to the β -tubulin gene, the LAMP product was digested with the enzyme *LweI* and sequenced. Our results have shown that the LAMP technique is a specific and reproducible method that could be used to monitor MBC-resistance of *P. xanthii* in the field.