Galling in Actinidia spp. seedlings

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Several Actinidia spp. genotypes exhibit crown gall-like symptoms in both roots and canes. Galls form on roots and pruning wounds of canes. Investigations were undertaken to determine if an Agrobacterium species was responsible for gall formation in the Actinidia spp. material. Macerated galls were plated onto King’s B and various selective Agrobacterium agars, e.g. 1A and Roy & Sasser media. Bacterial isolates were tested by PCR for the presence of tumour-inducing (Ti) plasmids. Isolates that tested positive for the Ti plasmid were subsequently tested for pathogenicity by inoculation onto cut carrot discs, Nicotiana glutinosa and Solanum lycopersicum, and assessed for gall formation. Bacterial isolates that tested positive by PCR for the Ti plasmid were an orange tan colour on selective medium 1A, and clear with a red centre on the Roy & Sasser medium. Galls formed on cut carrots, S. lycopersicum and N. glutinosa after inoculation of Ti-positive bacterial isolates. Initial results indicate that an Agrobacterium species is associated with the formation of galls in Actinidia seedlings. However, biochemical characterisation and confirmation of Koch’s postulates using Actinidia species are needed for verification of this result.

Parasitism of diamondback moth Plutella xylostella by the solitary parasitoid wasp Cotesia vestalis in Samoa

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Plutella xylostella is a major pest of crucifer crops in Samoa and other Pacific islands. This pest has developed resistance to most insecticides available in the island nations so the objective of this study was to examine potential biological control options for P. xylostella in Samoa. Existing parasitism of P. xylostella on Chinese cabbage (Brassica rapa subspp.) was investigated at a farm in Alesia and at the USP farm in Alafua, and established populations of Cotesia vestalis were found at both locations. Plutella xylostella larvae turn light yellow and show sluggish behaviour after parasitism, and they could be easily differentiated from unparasitised ones. Developing C. vestalis larvae emerge from their hosts and spin white cocoon around their body. After 5–6 days, a single adult emerges from the C. vestalis cocoon. The average parasitism rate between April 2015 and March 2016 was 10–18% but was significantly higher at the USP farm than the Alesia farm. This result could be because no insecticides were applied to the crops at USP. Parasitism was highest between June and August when the lowest average daily temperatures occur.