

Pesticidal proteins exhibiting toxic activity against Lepidopteran pest species are disclosed, and include, but are not limited to, TIC7941, TIC7941PL_1, TIC7941PL_2, and TIC7941PL_3. DNA constructs are provided which contain a recombinant nucleic acid sequence encoding one or more of the disclosed pesticidal proteins. Transgenic plants, plant cells, seed, and plant parts resistant to Lepidopteran infestation are provided which contain recombinant nucleic acid sequences encoding the pesticidal proteins of the present invention. Methods for detecting the presence of the recombinant nucleic acid sequences or the proteins of the present invention in a biological sample, and methods of controlling Lepidopteran species pests using any of the TIC7941, TIC7941PL_1, TIC7941PL_2, and TIC7941PL_3 pesticidal proteins are also provided. Also disclosed are methods and compositions to improve the insecticidal activity of a pesticidal protein against an insect pest species. Further disclosed are method and compositions to reduce expression of a pesticidal protein in the reproductive tissues of a transgenic plant.