COLD STORAGE OF PARASITIZED AND UNPARASITIZED EGGS OF THE GLASSY-WINGED SHARPSHOOTER, *HOMALODISCA COAGULATA*

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INTRODUCTION

The egg parasitoid, *G. ashmeadi*, is a mymarid wasp that accounts for 95% of the observed parasitism of the glassy-winged sharpshooter (GWSS) in California. This has stimulated researchers to try to develop methods for rearing large quantities of this parasite for release in areas where augmentation is needed or where other control measures cannot be used. In the absence of techniques for propagating *G. ashmeadi* via artificial means, rearing this insect in large quantities also requires that the GWSS or another acceptable host be cultured to provide the eggs for this parasite. Protocols designed for efficient mass-rearing generally include techniques which enable the production managers to hold their insects for varying periods of time to synchronize various aspects of the rearing procedure and for distribution to the release site when needed. Having the capability to hold a particular life stage or stages in abeyance during mass-rearing is especially important when synchronizing the life cycles of two insects such as in a parasite-host relationship. Low temperature storage is an integral part of the process of mass-rearing insects for use in agricultural pest control programs. It is the practical application of information provided by researchers studying arthropod cryobiology, dormancy, host-prey interactions, and mass-rearing methods. Storage of parasitoids of the GWSS will allow insect production managers to gain flexibility and enables them to supply a purely biological product on demand. The effectiveness of any biological agent used for pest control purposes depends on being released at the proper time. Unforeseeable environmental influences such as those impacting on pest migration, population fluctuations, and plant growth amplify the need for precise timing, especially when releases of insects are to be integrated into multi-disciplinary control programs. Thus, this project is designed to yield information to aid in the mass-rearing and timely release of egg parasitoids of the GWSS.

OBJECTIVES

1. Determine the cold tolerance of *G. ashmeadi* within host eggs of GWSS under specific environmental and developmental parameters. Assess whether chilling has latent effects on the quality of the adult parasitoid.

2. Determine the most effective method for cold storage of unparasitized GWSS eggs by examining post-storage acceptability by the parasitoid, parasite survival, reproduction, and host-seeking behavior.

3. Determine the efficacy of extending the shelf-life of unparasitized eggs by pre-conditioning the female GWSS through altering the environmental and/or nutritional standards prior to cold storage.

RESULTS AND CONCLUSIONS

This research project was only recently begun because funding was received in September of this year.