P014 An Egg Parasitoid of Hymenoptra Found in the Field Using the Silkworm *Bombyx Mori*

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The silkworm *Bombyx mori* is a domestic insect and has excellent manipullability for establishing mass-cultures.

a） *Bombyx mori* is obedient Lepidopteran insect that doesn't bite, try to escape, demand water or urinate.
b） Because the wing of *Bombyx mori* has degenerated almost, we do not inhale those scales, and do not put the scale on the face and clothes.
c） The silkworm *Bombyx mori* has been reared successfully on artificial diets contained the powder of mulberry leaf.
d） Because *Bombyx mori* is diapause of the egg, we can obtain those preservation eggs on uniform stage.
E） *Bombyx mori's* Eggs can be collected in every one hour. Egg stage is very homogeneous.

In contrast, continuous rearing has encountered many difficulties in the case of other lepidopteran insects such as Mamestra brassicae and Ephestia kuehniella. When we find a common egg parasitoid that attacks the silkworm and lepidopteran pest insects, we expect to establish masscultures of the silkworm eggs infected by hymenopteran parasitoids and release these parasitoids in pest management.

Artificial *Bombyx mori*'s egg for Parasitoid's diet:

a） High Parasitism are related to the developmental stage of host egg. Host insect embryo and parasitoids must compete with each other for the Nutritions（Yolk）
b） On oviposition any kinds of insect egg is nearly a single cell which consist of fatty yolk, protein yolk, cytoplasm and single yolk, cytoplasm and single nucleus. On early developmental stage, Egg contain a large number of yolk（abundant nutrition for parasitoid and host）.
c） If we can stop the development of egg on early stage, the egg can be infected by the egg parasitoid for a long period. The egg for the forecast parasitism could be exposed for a week. So this egg was suitable for artificial diet for more than a week.
d） Although there are many way to kill germ anlage, I selected the way to kill only germ anlage by UV irradiation.

Chorion dissolution: Bombyx mori's egg have thick chorion.

a） If there is no blocking factor, we can produce substitute airtificial diet *Bombyx mori*'s egg for Egg Parasitoid .
b） So I am trying to dissolve thick chorion's surface of *bombyx mori* by mean of removing a blocking factor.

* Attractive factor for A species may be blocking factor for B species. We may paint an attractive factor to airtificial eggs with thin chorion in the future.

In July of 2005, the silkworm eggs exposed to lower temperature and UV light were transferred to the field in Miyagi, Japan; repeated one each week. As a result, general Trichogramma parasitoids were not found, but an unknown species of the same size as in Trichogramma was observed. This result suggests that a novel species used mass-culture of the silkworm may be important in biological control of pest insects.

・Biological control using releases of Trichogramma has increased greatly since T. dendrolimi Matsumura can be successfully mass reared on eggs of the Chinese oak silkworm, *Antheraea pernyi* Guerin-Meneville.（WANG, 2005）. But Insect hemolymph in this Artificial diet is usually poor in protein content compared to lepidopteran eggs（Grenier, 2005）

Would you joint research for parasitoid mass production rearing on *Bombyx mori's egg* with me?

・High parasitism is in egg on early developmental stage.
・*Bombyx mori* has been reared on worldwide.
・*Bombyx mori's* artificial egg will be infected on some Parasitoids anywhere in the world.
・I would like to rear Trichograma on this artificial *Bombyx mori*'s egg.
・To overlap the generation of pest Lepidopteran insect and Parasitoid, it is necessary to monitor strictly a pest Lepidopteran insect for IPM application.
・*Bombyx mori* can be used for the education of IPM（especially about biological control） in a grade school where *Bombyx mori* is kept as a part of the healing education.

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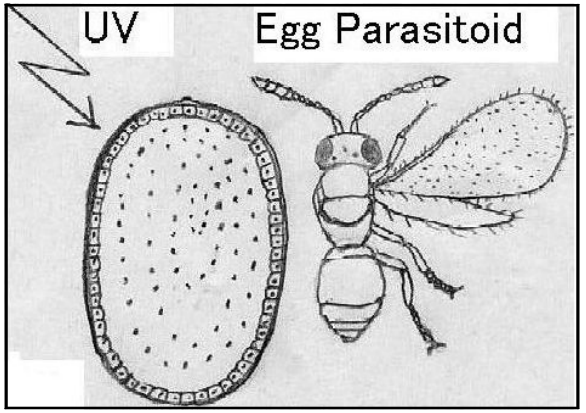

on *Bombyx mori*'s egg