D7

Investigation of Silkworm Response Characteristics to Treatment of IGR(Insect Growth Regulator) pesticides I - Investigation of Effects of Buprofezin, Methoxyfenozide, Flufenoxuron, Teflubenzuron on Silkworm

Bong-Hee Sohn[1], Nan-Hee Ahn[1], Jong-Min Lee[1], Yong-Soon Kim[1], Pil-Don Kang[1], Sang-Uk Lee[1], Kyung-Hun Park[2], Jin-Bok Joo[2] and In-Sik Chung[3]

[1]Department of Agricultural Biology, NIAST, RDA Suwon 441-100, Korea, [2]Department of Crop Life Safety, NIAST, RDA and [3]Department of Genetic Engineering, Kyung-Hee University, Suwon, 449-701, Korea.

In 2002, many silkworm raising farmhouses were damaged by occurrence of non-pupating silkworms in spring. It is estimated that one of the cause of non-pupating is IGR pesticides which were sprayed around during the spring rearing season. Thus, four IGR pesticides (Buprofezin, Methoxyfenozide, Flufenoxuron, Teflubenzuron) were selected among 8 IGR pesticides on the market, and the effect of selected 4 IGR pesticides on silkworm is investigated.

Treatment at the concentration of 1,000 times of standard concentration, at the 5th age and 3th day, Methoxyfenozide treated silkworms show abnormal symptom such as body reduction, body color change to yellow and annulus color change to brown, but silkworms treated with the other pesticides showed no difference compare to control. But after the treatment, at the age 5th and 5th day, silkworms treated with Buprofezin only showed no abnormal symptoms and couldn't be distinguished from control, other silkworms treated with Flufenoxuron and Teflubenzuron showed symptoms such as annulus breaks and skin breaks when touched by hand.

Treated with pesticides at the concentration of 1,000 times of standard concentration, all silkworms except treated with Methoxyfenozide went through normal growth and pupated. Especially, silkworms treated at the 4th age showed high larvae death rate, but those treated at the 5th age showed high death ratio in the mounting. Among them, silkworms treated with Buprofezin showed more than 90% of half-pupation rate, and this is

representative functional characteristics of IGR pesticides which disturb metamorphosis and promote the juvenile hormone actions.