

## Effects of Sex Sterilants on the Growth of Coccinellid Larvae (Coleoptera: Coccinellidae)

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### Abstract

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*N,N'*-Hexamethylene bisaziridinyl carboxamide and apholate interfered with the growth of *Anatis mali* Auct. and prevented it from reaching the adult stage. *Coleomegilla maculata lengi* Timberlake was unable to grow with hexamethylene bisaziridinyl carboxamide in the drinking water but was able to tolerate a 0.01% solution of apholate.

When sex sterilants are used in the field against pest species they may reduce the numbers of the parasites and predators of the pests by affecting reproduction, development, and growth. This is a report of the effects of *N,N'*-hexamethylene bisaziridinyl carboxamide (abbreviated to HBC) and apholate (Oline Mathieson Chemical Corp., New York, N.Y.) on the development and growth of *Anatis mali* Auct. and *Coleomegilla maculata lengi* Timberlake. The sterilants were kindly supplied by Dr. Samuel S. Ristich, The Squibb Institute for Medical Research, New Brunswick, N.J.

Both coccinellid species were reared on dry powdered pea aphids, *Acyrtosiphon pisum* (Harris), in glass cells under constant conditions of temperature and humidity, i.e. 22° C. and 65% R.H. (Smith 1965). Each sterilant was included in the drinking water of the larvae at concentrations of 1.0, 0.1, and 0.01%. At least 15 first-instar larvae of *A. mali* and *C. maculata* were reared at each concentration of both sterilants. Control groups were similarly reared with untreated drinking water.

TABLE I

Results of rearing *A. mali* and *C. maculata* on various concentrations of *N,N'*-hexamethylene bisaziridinyl carboxamide and apholate

	HBC			Apholate			Control	
	1.0	0.1	0.01	1.0	0.1	0.01	Water	
				<i>A. mali</i>				
Longevity, days	1-2	1-2	1-3	3-4	7-9	1-20	19-22	
Stage reached	L1*	L1	L1	L1	L2	L4	Adult	
Survival to adult, %	0	0	0	0	0	0	75	
				<i>C. maculata</i>				
Longevity, days	6-9	5-52	6-42	1-3	1-15	30-32	18-20	
Stage reached	L1	L4	Pupa	L1	L3	Adult	Adult	
Survival to adult, %	0	0	0	0	0	90	80	

\*First-instar larva.

Results are given in Table I. Both sterilants interfered with the growth of *A. mali* and prevented the larvae from developing to the adult stage. HBC prevented *C. maculata* from reaching the adult stage. The latter species tolerated 0.01% apholate but growth was slowed.

### Reference

Smith, B. C. 1965. Growth and development of coccinellid larvae on dry foods (Coleoptera: Coccinellidae). *Can. Ent.* 97: 760-768.

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