Susceptibility of the Siberian Moth *Dendrolimus superans* Butl. to Pyrethroids

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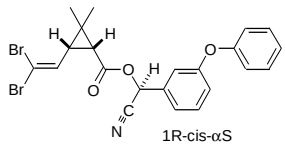
The Siberian Moth *Dendrolimus superans* Butl. (*Lepidoptera*: *Lasiocampidae*) is the most dangerous defoliator of coniferous forests of Siberia and the Far East. For control of its outbreaks the pyretroids insecticides are widely use. Nevertheless, there are not the data about toxicilogical studies of pyrethroids to the Siberian Moth larvae.

We collected the pupae of Siberian Moth during the second decade of June, 1998, in north-eastern part of the Novosibirsk region, Russia. After the emergence of moths and copulating, we obtained the egg-lays. The enclosed larvae were placed to 3 L glass containers (100 larvae per container). We fed the larvae by Siberian fir. In toxicological study the 3th instar larvae were used. The evaluation of toxicity was made using a topical application method (Busvine, 1957). Acetone solutions of pyrethroids (1.0 µl) were applied on the dorsum of the larva with a 10 µl Hamilton chromatographic syringe, and after the solvent was evaporated, the larvae were placed into glass containers and kept 21ºC. The mortality were registrated on 1th, 3th and 5th day. In toxicity tests, at least four graded doses of each insecticide were used to establish dose/mortality lines. Every concentration tested was applied on 20 larvae; three replicates of each dose were done. The control larvae were treated with 1.0 µl of acetone solvent. The mortality was not observed in the controls. The data obtained were treated using probit analysis (Finney, 1952). The LD_{50} values (µg/g, the average weight of an individual is about 150 mg) were determined from the graphical displays of dose-mortality relationships.

We tested 4 pyrethroids: deltamethrin (**1**), α-cypermethrin (**2**), indocythrin (**3**) and indofluthrin (**4**). All compounds were obtained from the Terpenoids Labotatory of the Novosibirsk Institute of Organic Chemistry. The most toxic insecticides were deltamethrin and α-cypermethrin (see Table 1).



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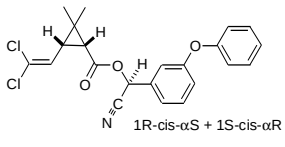

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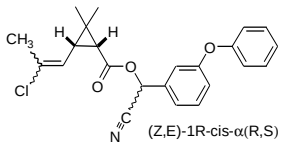

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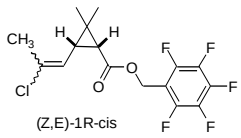

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Table 1. Susceptibility of Siberian Moth *Dendrolimus superans sibiricus* to pyrethroids.

Pyretroid compounds	$LD_{50} \pm CI^*$, µg g^{-1}	Dose-mortality equation of regression
Deltamethrin	0.014 ± 0.003	y = 2.2x + 9.1
α-Cypermethrin	0.018 ± 0.005	y = 2x + 8.5
Indocythrin	0.1 ± 0.02	y = 2.1x + 7.1
Indofluthrin	0.37 ± 0.06	y = 2.9 + 6.3

* Confidence intervals were calculated at P = 0.05.