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Study on fumigation of tobacco lamina with sulfuryl fluoride at low temperatures

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ABSTRACT

Temperature has a strong relationship with lethal effect of sulfuryl fluoride. The effect of sulfuryl fluoride with different concentrations on *Lasioderma serricornis* (F.) in different types of tobacco storages from 0 to 10°C was studied. The results showed that 100% of four stages of tobacco beetles were killed by sulfuryl fluoride under 30 g/m³ in 7 d. When the concentration of sulfuryl fluoride was lower than 20 g/m³, a small number of eggs still hatched. In addition, when sulfuryl fluoride was injected into the sealing fume stack through guide pipes, the phenomenon of volatile frostiness could be observed in the cylinder valve, guide pipe, and outlet during application. Not only should the injection rate not be higher than 10 kg/h, but also the outlet of the guide pipe should not be in direct contact with the tobacco box, otherwise, dew and even frost could occur on the tobacco box. The results of this study provided technical information for the application of sulfuryl fluoride fumigation in the cold region of northern China.

Keywords: Sulfuryl fluoride, Low temperatures, *Lasioderma serricornis*, northern China