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ONLINE ISSN : 1349-0923

PRINT ISSN : 1348-589X

Journal of Pesticide Science

Vol. 30 (2005) , No. 4 pp.409-413



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Effects of Halogen Introduction at the C5 Position of the Imidacloprid Pyridine Ring upon Insecticidal Activity

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(Received: June 22, 2005)

(Accepted for publication: August 12, 2005)

Abstract:

Following a recent report of unexpectedly high affinity of 5-azidoimidacloprid to insect nicotinic acetylcholine receptor, derivatives with four halogen atoms and cyano and nitro were prepared, and the insecticidal effect was evaluated in American cockroaches by injection alone and with synergists, piperonyl butoxide and propargyl propyl benzenephosphonate. The log (1/MLD) value, the minimal lethal dose in mol, was 8.96 for imidacloprid, and 8.82 for the fluoro derivative. The other derivatives were less active. Synergists enhanced the activity of all compounds. The log (1/MLD) value for 5-azidoimidacloprid, 7.37 without or 8.18 with synergists, was not striking in this experiment. © Pesticide Science Society of Japan

Keywords:

neonicotinoid insecticide, imidacloprid, American cockroach, insecticidal activity, synthesis of substituted pyridine



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Shinzo Kagabu, Nakako Ito, Rie Imai, Yosuke Hieta and Keiichiro Nishimura, "Effects of Halogen Introduction at the C5 Position of the Imidacloprid Pyridine Ring upon Insecticidal Activity". *J. Pestic. Sci.* Vol. **30**, pp.409-413 (2005) .

doi:10.1584/jpestics.30.409

JOI JST.JSTAGE/jpestics/30.409

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