Pyridine derivatives as insecticides. Part 2: Synthesis of some piperidinium and morpholinium cyanopyridinethiolates and Their Insecticidal Activity

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Abstract:

The work included in this paper involves the synthesis of thirteen heterocyclic compounds, piperidinium and morpholinium 3-cyanopyridinethiolates 5–14, 17, 20 and 21 in our Lab. and their characterization using elemental and spectroscopic analyses. The insecticidal activities of these compounds against cowpea aphid, Aphis craccivora using acetamiprid insecticide as a reference were studied. The bioassay results showed that: (i) the insecticidal activities of compounds 13, 14 and 20 against nymphs or adults of cowpea aphid are about 1.5-fold higher than that of acetamiprid after 48 h of treatment, (ii) the rest of the tested compounds (ten compounds) exhibit weak to strong toxicity against cowpea aphid and (iii) there is a remarkable relationship between the structure and activity of the tested compounds.

Keywords:

Piperidinium cyanopyridinethiolates; Morpholinium cyanopyridinethiolates; Acetamiprid; Cowpea aphid; Insecticides

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