



Design, Synthesis, Characterization, and Insecticidal Bioefficacy Screening of Some New Pyridine Derivatives

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Abstract:

A lot of insecticides are found nowadays, but neonicotinoids are considered the most famous. So, a series of pyridine derivatives neonicotinoids analogues, namely, 3-cyano-4,6-dimethylpyridine-2(1H)-one (1), 2-chloro-3-cyano-4,6-dimethylpyridine (2), 3-cyano-4,6-dimethylpyridine-2(1H)-thione (3), 3-cyano-4,6-distyrylpyridine-2(1H)-thione (4), 2-((3-cyano-4,6-distyrylpyridin-2-yl)thio)-N-phenylacetamide (5), 3-amino-N-phenyl-4,6-distyrylthieno[2,3-b]pyridine-2-carboxamide (6), 2-((3-cyano-4,6-distyrylpyridin-2-yl)thio)-N-(p-tolyl)acetamide (7), 3-amino-4,6-distyryl-N-(p-tolyl)thieno[2,3-b]pyridine-2-carboxamide (8), 2-((3-cyano-4,6-distyrylpyridin-2-yl)thio)-N-(4-methoxyphenyl)acetamide (9), and 3-amino-N-(4-methoxyphenyl)-4,6-distyrylthieno[2,3-b]pyridine-2-carboxamide (10), have been designed and synthesized in pure state, and their agricultural bioefficacy as insecticides against cowpea aphid *Aphis craccivora* Koch was screened. The structures of the synthesized compounds were verified by means of spectroscopic and elemental analyses. Insecticidal bioefficacy data illustrated that some compounds are excellent against cowpea aphid, and the bioefficacy of the rest of the tested compounds ranged from good to moderate against the same insects.

Keywords:

New Pyridine Derivatives, Insecticidal Bioefficacy Screening

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