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FLUORINE IN PESTICIDES

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The electronic and other physical properties of fluorine in organic compounds are summarised and compared with those of hydrogen and chlorine. These are used to explain the differences in pesticidal properties which are observed when either hydrogen or chlorine are replaced by fluorine with reference to fluoracetic acid; benzoylprop ethyl and flamprop methyl; nitrofen and fluorodifen; bifenox and acifluorfen; DU 19111 and diflubenzuron.

The use of fluorine is further illustrated by a description of the work leading to the discovery of the rodenticide flupropradine and the herbicide diflufenican and by an account of the mode of action of the latter compound compared with the structurally similar flumeturon, norflurazon and fluridone.

It is suggested that changes brought about by fluorine substitution are frequently useful, may be considerable, but in many cases are unpredictable.