A structural investigation of some light atom molecules.

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by John Buckleton, 1989

Department of Chemistry
University of Auckland

CONTENTS

Abstract

A series of structures of light atom molecules is presented. The molecules, in the main, are physiologically active or potentially active. The molecules have been divided into five broad categories. Their structure and properties are discussed.

Section 1 presents some organic natural products largely isolated during the chemotaxonomic investigation of coastal marine organisms from New Zealand and Australian waters including the first porphyrin isolated from a sponge. Also presented are the structures of an isostegane and an intermediate in the synthesis of potentially odoriferous compounds.

Section 2 presents compounds related to the drug amsacrine m-AMSA, of known chemotherapeutic use and other compounds produced in the study of chemotherapeutic agents, some as templates for elaboration into bis- and tris- intercalators.

Section 3 presents anthraquinone derivatives related to the synthesis of compounds of known chemotherapeutic activity. One of these is a stable ozonide.

Section 4 presents the study of 4,4'-bipyridinium cations, compounds related to paraquat and exhibiting interesting electrical properties.

Section 5 presents two compounds related to the study of colchicine, the most commonly used drug in the treatment of gout and a compound of other biological interest. One is an active analog the other is an intermediate in the regiocontrolled synthesis of colchicine itself.

Note

The units for the tables are Å for distances and degrees for angles. The structure factors are electrons x 10, and the thermal parameters are $Å^2$.

Chemical structures for each of the compounds in this thesis appear at the back.