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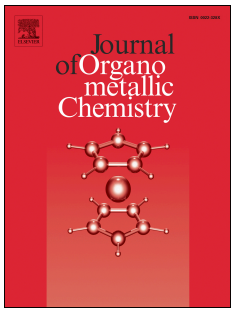

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Synthesis, structure and *in vitro* cytostatic activity study of the novel organotin(IV) derivatives of *p*-aminobenzenesulfonic acid

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Abstract

Four new *p*-aminobenzenesulfonate organotin complexes, $[(n\text{-}Bu_3Sn)(O_3SC_6H_3\text{-}NH_2\text{-}4)]_n$ (**1**), $[(n\text{-}Bu_2Sn)_4(O)_2(OH)_2(O_3SC_6H_4\text{-}NH_2\text{-}4)_2]$ (**2**), $[(Me_2Sn)_4(O)_2(OH)_2(O_3SC_6H_4\text{-}NH_2\text{-}4)_2]$ (**3**) and $[\{(n\text{-}BuSn)_{12}O_{14}(OH)_6\}(O_3SC_6H_4\text{-}NH_2\text{-}4)_2\cdot 3C_4H_8O_2]$ (**4**·diox), were synthesized by reaction of *p*-aminobenzenesulfonic acid with tributyltin oxide, dibutyltin oxide, dimethyltin oxide and monobutyltin oxide, respectively. These complexes were characterized by elemental analysis, FT-IR, NMR (^{1}H, ^{13}C, ^{119}Sn) spectroscopy as well as single-crystal X-ray diffraction. The crystal structure of complex **1** reveals that it is a 1D zig-zag chain structure and further interlinked into a 2D network by intermolecular interaction (N-H···O). The structure analysis indicates that complexes **2** and **3** are the ladder-like structure including three alternate Sn_2O_2 rings, and further result in the formation of a 3D supramolecular architecture for **2** and a 2D supramolecular network for **3** by extensive hydrogen-bonding interactions (O-H···O, N-H···O). Complex **4** exhibits a dodecanuclear organooxotin cages, which are connected into a hydrogen-bonded 2D structure. Furthermore, complexes **1**-**4** were evaluated for their *in vitro* cytostatic activity against the human lung cancer cells (A549) and the human hepatocellular carcinoma cells (HepG-2). The preliminary screen shows that organotin derivatives with increasing number *n*-butyl group exhibits significantly higher cytostatic activity, and much higher than methyl group.

Keywords: organotin(IV); *p*-aminobenzenesulfonic acid; X-ray crystallography; characterization; *in vitro* cytostatic activity

1. Introduction

In recent years, organometallic self-assembly has become a powerful tool for the construction