Butyltin(IV) 5-sulfosalicylates: structural characterization and their cytostatic activity.

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Streszczenie

Butyltin complexes with 5-sulfosalicylic acid (H_3ssal) $[Sn(C_4H_9)_3\{O_3SC_6H_3(OH)COOH\}]$ (**1**), $[Sn_2(C_4H_9)_6(OOCC_6H_3OHSO_3)]$ (**2**) and $[Sn_3(C_4H_9)_6(OOCC_6H_3(OH)SO_3)_2O]$ (**3**) have been synthesized and characterized by ESI-MS, IR and ^{1}H, ^{13}C and ^{119}Sn NMR spectra. Their structures and properties in solid state and solutions were proposed on the basis of the spectroscopic data and density functional theory (DFT) calculations at B3LYP/3-21G** level. The complex **1** in solid state is a chain compound with bridging ligand $O_3SC_6H_3(OH)COOH^-$ coordinated to two adjacent $SnBu_3$ units via SO_3 and COOH groups and complex **2** is a dinuclear compound with $O_3SC_6H_3(OH)COO^{2-}$ bridging ligand bound to the $SnBu_3$ moieties through SO_3 and COO groups. The spectroscopic data indicate that **3** is probably a trinuclear complex containing bridging oxido and Hssal ligands containing two five-coordinate and one six-coordinate tin atoms. The complexes effectively interact with ATP and DAMP nucleotides forming Sn–OP bonds and O′–H′…O and N…H–O (nucleotide–Hssal) hydrogen bonds. All compounds are very effective cytotoxic agents against tumor cells. The cytotoxic activity changes in the order **2** > **1** > **3**. Their activity toward non-tumor NHDF cells is much lower. They show also antibacterial and antifungal activity.

Słowa kluczowe

dibutyltin, tributyltin, 5-Sulfosalicylate, Antitumor, Bactericide, Fungicide

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