Biological study of di-organotin(IV) complex [Bu$_2$Sn(naproxen)$_2$] with the anti-inflammatory Naproxen as ligand.

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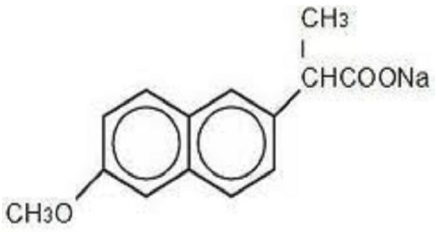
Naproxen (napH) (Scheme 1) is a non-steroidal anti-inflammatory drug, member of aryl acetic acid or propionic acid group [1]. Its analgetic and anti-inflammatory activity is equivalent with many other of non- steroidal anti-inflammatory drugs (NSAIDs). Naproxen is advisable for rheumatoid arthritis and painful situations. Naproxen has dose-dependent anti-inflammatory, analgetic and antipyretic activity, since it decreases the prostaglandins biosynthesis, as much in vitro, as in vivo [2]. The effect of naproxen is generally equivalent to or less than indomethacin, but greater than phenylbutazone, and 20times than aspirin [3].

In the course of our studies in the field of bioinorganic chemistry [4] we synthesized and characterized the new organotin(IV) complex with the anti-inflammatory drug Naproxen of formula [Bu$_2$Sn(naproxen)$_2$] (**1**). The cytoxic effects of **1** were evaluated via 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide **(**MTT) and Trypan Blue methods. The dose-dependent cytotoxic activity of **1** was studied in different cell lines [rat leiomyosarcoma cells (LMS), human cervical uterus carcinoma (HeLa), human breast adenocarcinoma (MCF-7), human osteosarcoma (U20S), and normal human fibroblasts (MRC-5)]. Moreover, time-dependence effect of 1 towrds LMS and MRC-5 for 24, 48 and 72 hours was examined. Afterwards, the cell death type caused by the complex was studied through flow cytometry and DNA fragmentation methods. In addition the influence on colony efficiency of LMS and MRC-5 cells was evaluated

The results show a remarkable selective activity of **1** against sarcoma cells, while the higher activity was observed for incubation time of 24 hrs. Colony efficiency of **1** against neoplastic cells show reversible behaviour at concentration equals to IC$_{50}$ values and irreversible at higher. The type of the cell death, induced by complex 1 is apoptotic.



Scheme 1

References

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