



## A NOVEL APPROACH TO THE ORGANOTINS DETOXIFICATION

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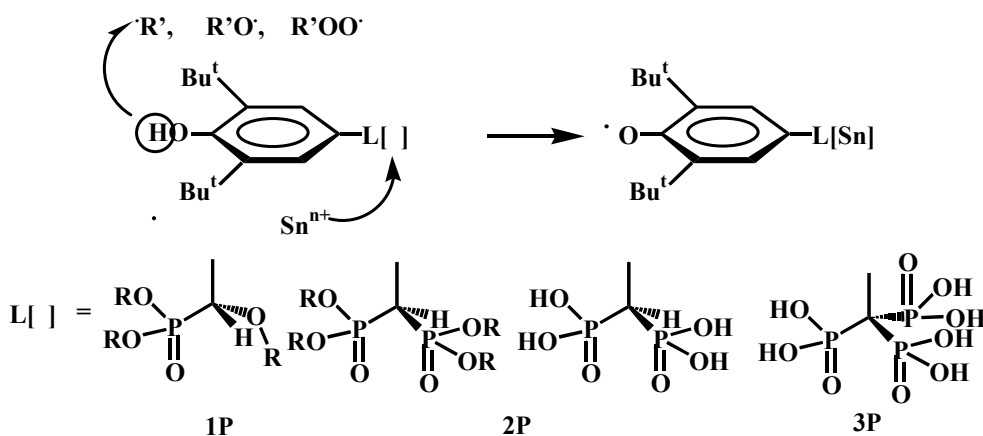
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Organic derivatives of heavy elements ( $R_nMX_m$ ), in particular, organotins ( $R_nSnX_m$ ) induce membrane associated oxidative stress in living organism through the enhancement of lipid peroxidation and intracellular generation of reactive oxygen species. The involvement of  $R_nSnX_m$  in radical and redox cellular processes is manifested in C-Sn bond cleavage and to the formation of reactive organic radicals  $R^\bullet$ . Both metal center Sn and organic group R are the key centers in the biochemical reactivity of organotins.



These events might be prevented or inhibited by the antioxidants as radical scavengers and by the chelating agents as metals scavengers. This knowledge allows us to propose a more rational design of new chemical detoxification approach. A new route of the prevention of the prooxidative activity of organotins by application of chelating agents bearing the antioxidative 2,6-dialkylphenol pendants has been developed. Novel 2,6-di-*tert*-butylphenols with chelating substituents such as phosphonates with various number of P atoms were synthesized and their activity as antioxidative scavengers has been studied.



The efficiency and mechanisms of action of chelating and/or antioxidative agents, useful for the chemical detoxification of organotins will be discussed. Some peculiar aspects of biological detoxification will also be discussed, in relation to organotins metabolism.

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### **References**

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