



## Chelating Agents for the Sequestration of Mercury(II) and Monomethyl Mercury(II)

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Both mercury(II) and monomethyl mercury(II) poisonings are of great concern for several reasons. As it happens for other metals, chelation therapy is the most indicated treatment for poisoned patients. The efficacy of the therapy and the reduction of side-effects can be sensibly enhanced by an accurate knowledge of all the physiological mechanisms involved in metal uptake, transport within and between various tissues, and (possibly) clearance. All these aspects, however, are strictly dependent on the chemical speciation (i.e., the distribution of the chemical species of a component in a given system) of both the metal and the chelating agent in the systems where they are present. In this light, this review analyzes the state of the art of research performed in this field for mercury(II) and methylmercury(II). After a brief summary of their main sources, the physiological patterns for the treatment of mercury poisoning have also been considered. The binding ability of various chelating agents toward mercury has been then analyzed by modeling the behavior of the main classes of ligands present in biological fluids and/or frequently used in chelation therapy. Their sequestering ability has been successively evaluated by means of a semiempirical parameter already proposed for its objective quantification, and the main characteristics of an efficient chelating agent have been evaluated on this basis.

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