Selten-Erd-Mandelate. Synthese und Kristallstrukturen von $Pr(Man)_3(ManH)$ und $Er(Man)_3(H_2O)_2$

Synthesis and Crystal Structures of $Pr(Man)_3(ManH)$ and $Er(Man)_3(H_2O)_2$

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$Pr(Man)_3(ManH)$ and $Er(Man)_3(H_2O)_2$ (ManH = mandelic acid) have been synthesized by slow evaporation of aqueous solutions of rare-earth salts ($Pr(OH)_3$, $ErCl_3 \cdot 6H_2O$) with mandelic acid (α-hydroxy-phenyl acetic acid, $C_8H_8O_3$) and their crystal structures were determined on the basis of X-ray data. In the crystal structure of $Pr(Man)_3(ManH)$ (**1**) (monoclinic, $P2_1$, $a = 574.8(1)$, $b = 3042.5(4)$, $c = 908.4(1)$ pm, $\beta = 92.09(2)^\circ$, $Z = 2$) the Pr(III) ions are surrounded by eight oxygen atoms in a distorted square antiprismatic fashion with distances Pr-O in the range 241 to 254 pm. These polyhedra are connected by coordinative bonds to chains paralleling the crystallographic [100] direction. In $Er(Man)_3(H_2O)_2$ (**2**) (orthorhombic, $P2_12_12_1$, $a = 577.7(3)$, $b = 1816.3(13)$, $c = 2329.4(13)$ pm, $Z = 4$) the crystal structure contains isolated complexes with octa-coordinated erbium atoms chelated by three mandelate anions through one of their carboxylate oxygen atoms and the alcoholic hydroxyl group. Two water molecules complete the distorted square antiprismatic coordination sphere.

Key words: Rare-Earth Mandelates, Praseodym Mandelates, Erbium Mandelates, Mandelic Acid