The Crystal Structures of 2-(3'-Hydroxypropyl)benzimidazolium Hexa- and Tetrachloroplatinate

A. Elmali$^a$, Y. Elerman$^a$, G. Eren$^b$, F. Gümüş$^b$, and I. Svoboda$^c$

$^a$ Department of Engineering Physics, Faculty of Engineering, Ankara University, 06100 Besevler-Ankara, Turkey
$^b$ Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Gazi University, 06330 Etiler-Ankara, Turkey
$^c$ Institut for Materials Science, Darmstadt University of Technology, Petersenstraße 23, D-64287 Darmstadt, Germany

Reprint requests to A. Elmali. E-mail: elmali@eng.ankara.edu.tr

Z. Naturforsch. 60b, 164 – 168 (2005); received August 20, 2004

2-(3'-Hydroxypropyl)benzimidazolium (Hhpb) hexa- and tetrachloroplatinate (C$_{10}$H$_{13}$N$_2$O)$_2$[PtCl$_6$] 1 and (C$_{10}$H$_{13}$N$_2$O)$_2$[PtCl$_4$] 2 were synthesized and their crystal structures determined. Compound 1 is monoclinic, space group $P2_1/n$, $a = 8.800(1)$, $b = 14.389(2)$, $c = 10.264(2)$ Å, $\beta = 98.540(10)^\circ$, $V = 1285.3(3)$ Å$^3$, $Z = 2$ and $D_c = 1.959$ g cm$^{-3}$. Compound 2 is triclinic, space group $P\bar{1}$, $a = 7.8480(10)$, $b = 9.0460(10)$, $c = 9.6980(10)$ Å, $\alpha = 65.420(10)$, $\beta = 68.810(10)$, $\gamma = 76.770(10)^\circ$, $V = 581.26(4)$ Å$^3$, $Z = 1$ and $D_c = 1.969$ g cm$^{-3}$. In both compounds, the Pt atoms reside at a centre of inversion. Compounds 1 and 2 are comprised of 2-(3'-hydroxypropyl)benzimidazolium (Hhpb)$^+$(C$_{10}$H$_{12}$N$_2$O)$^+$ and [PtCl$_6$]$^{2-}$ and [PtCl$_4$]$^{2-}$ ions, respectively, linked by intermolecular hydrogen bonds N···Cl [range from 3.428(3) to 3.584(4) Å], N···O [2.769(5) Å] and O···Cl [3.338(4) and 3.321(3) Å] for 1, and N···Cl [3.162(7) Å], N···O [2.749(8) Å] and O···Cl [3.289(6) Å] for 2.

Key words: Crystal Structure, Platinate Salts, Benzimidazole, Antitumor Drugs, Hydrogen Bonds