CRYSTAL DATA OF SODIUM, POTASSIUM AND RUBIDIUM PICRATE COMPLEXES OF TETRA ETHYLENE GLYCOL BIS QUINOLINE ETHER

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COMPLEXATION of alkali metal ions was studied to understand the preferential uptake of K over Na. Much work has been done using synthetic cyclic macromolecules as ligands[1], but little is known about the interaction of noncyclic polyether. When the cyclic polyether is replaced by noncyclic polyether, the stability of these complexes is decreased[2] by a factor as high as 10^4. Therefore, noncyclicpolyethers were considered incapable of forming crystalline complexes. However, enhancement of stability was reported[3] by attaching rigid donor end groups to the oligobackbone. Whereas no crystalline complexes could be isolated from glymes, the substitution of methyl groups by aromatic donors lead to powerful complexons easily forming complexes.

In this communication the preliminary cell data of sodium, potassium and rubidium complexes of tetra ethylene glycol bis quinoline ether are reported. The complexes were isolated from a 1:1 (metal:ligand) reaction mixture using methanol and/or ethyl-acetate. The cell data were obtained from rotation and Weissenberg photographs using $Cu_{k\alpha}$ radiations (table 1).

In the case of KPic-BQE complex the space group P1 could be assigned uniquely as with $z = 3$ and the complex having no centre of symmetry the space group $P\bar{1}$ was not possible.

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Table 1 *Crystal data of MPic-BQE complexes*[a]

	NaPic-BQE	KPic-BQE	RbPic-BQE
Crystal	Yellow, transparent needles	Yellow, transparent needles	Yellow, transparent needles
Mol. formula	$Na(C_6O_7N_3H_2)$ $(C_{26}N_2H_{28}O_5)$	$K(C_6O_7N_3H_2)$ $(C_{26}N_2H_{28}O_5P$	$Rb(C_6O_7N_3H_2)$ $(C_{26}N_2H_{28}O_5)$
Crystal system	Monoclinic	Triclinic	Monoclinic
a	8.45 ± 0.05 Å	12.31 ± 0.03 Å	8.13 ± 0.02 Å
b	23.37 ± 0.03	11.56 ± 0.03	22.56 ± 0.04
c	14.19 ± 0.05	15.21 ± 0.02	15.87 ± 0.02
	90.00	107.3 ± 0.4	90.0
	99.4 ± 0.4	115.8 ± 0.3	110.3 ± 0.3
	90.0	83.8 ± 0.03	90.0
Volume	2802.06 Å^3	2016.95 Å^3	2872.60 Å^3
Mol. wt	699.0	715.0	763.0
Density g/cm^3(cal)	1.542	1.715	1.709
Density g/cm^3(obs)	1.530	1.620	1.680*
Z	4	3	4
Space group	$P2_1/C$	P1	$P2_1/C$

[a] MPic; M = Na, K, Rb; Pic = Picrate
BQE = tetra ethylene glycol bis quinoline ether
* Slightly soluble in bromoform/benzene mixture.