The Crystal Structural Variety of Tricyclic Quinazoline Salts

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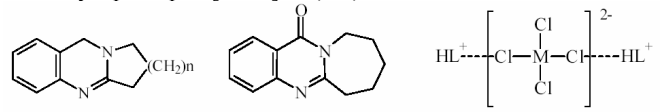
Quinazoline type of alkaloids are widely distributed in plants and induce a wide spectrum of biological activity. Usually they are used in applied medicine in a form of salts. For this reason their structures have practical importance. Hydrochlorides of tricyclic 3,4-dihydroquinasolines (L) easily form complexes with chlorides of metals (M= Zn, Co, Cu). Thus crystallographic independent unit is formed by a principle: $[MCl_4]^{2-} \bullet 2(HL)^+$:



In salt complex of alkaloid (n=3) with $ZnCl_4$ two polymorphic crystals have been found. Crystallographic independent unit forms a skeleton. Change in geometry of this skeleton can give rise to polymorphism. Hydrochlorides of alkaloids with n=1-3 are dihydrates. Here the aqua-systems are stabilized in crystal by hydrogen and the donor – acceptor interactions.

Similar skeletons form complex chlorides of 2,3-pentamethylen-3,4-dihydroquinazolone-4 with chlorides of metals. But this skeleton includes 3 water molecules. Crystals of hydrochlorides, depending on a crystallization condition, can be hydrates (inclusion 4.5 water molecules). However, these crystals after recrystallization transform into stable hydrochlorides.

Keywords: alkaloid structures, supramolecular assemblies, inclusion phenomena