

The mixte anionic-cationic form of an ionic aluminum(III) porphyrinato derivative, X-ray structure and physicochemical characterization

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In molar proportions, Aluminum is the most abundant 'true' metallic element in the earth's crust. However, according to all accounts it is an element with almost no 'natural' biochemical function. The main reason for this may be the very low solubility of Al^{3+} in water.¹ The very small amounts of remaining soluble species between pH 5 and 7 are cationic and anionic hydroxo complexes. An important number of aluminum porphyrins have been reported until today.²⁻⁶ However, it is the first time that the above principle seems to be followed in the case of aluminum porphyrinato-derivatives.

We report herein the synthesis and spectroscopic characterization of the precursor Chloro-[(Tetrakis-5,10,15,20- *N*-pyridyl)porphyrinato] Aluminum (III), which is the first water soluble in aluminum porphyrin complex that have ever been reported as far as we known. Treatment with water of the above give rise to a mixte derivative, composed by the anionic $(OH)_2$ -[(Tetrakis-5,10,15,20- *N*-pyridyl)porphyrinato] Aluminum (III) and the cationic $(OH_2)_2$ -[(Tetrakis-5,10,15,20- *N*-pyridyl)porphyrinato] Aluminum (III), for which the X-ray data are also presented.

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