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# INTRASPHERE TRANSFORMATIONS OF PLATINUM NITROCOMPLEXES IN PHOSPHORIC ACID SOLUTIONS AS METHOD OF SYNTHESIS OF DIFFERENT OLIGOMERIC PLATINUM PHOSPHATES

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Platinum phosphatocomplexes of various types were for the first time obtained in multi-stage redox-interaction of isomers  $\text{Pt}(\text{NH}_3)_2(\text{NO}_2)_2$  with conc.  $\text{H}_3\text{PO}_4$ : phosphatonitrosoamines  $\text{cis-HPt}(\text{NH}_2\text{NONH}_3)\text{NO}_2(\text{H}_2\text{PO}_4)_2\text{H}_3\text{PO}_4$  (I),  $\text{trans-Pt}(\text{NH}_3)_2\cdot\text{NO}_2\text{NO}(\text{H}_2\text{PO}_4)_2\text{H}_3\text{PO}_4$  (II); phosphatonitrodiamines  $\text{cis-(H}_n\text{)}\cdot[\text{Pt}(\text{NH}_3)_4(\mu\text{-HPO}_4)(\text{NO}_2)_2](\text{H}_3\text{PO}_4)_4(\text{H}_2\text{O})_2$  (III),  $\text{trans-(H}_n\text{)}\cdot[\text{Pt}(\text{NH}_3)_2(-\text{NO}_2)](\text{H}_2\text{PO}_4)_{1.25}(\text{H}_2\text{O})_{1.5}$  (IV); phosphatonitromonoamines  $(\text{H})\text{Pt}_2(\text{NH}_3)_2(\mu\text{-NO}_2)(\mu\text{-HPO}_4)_2\cdot 1.5\text{H}_2\text{O}$  (V); tetraphosphates  $(\text{NH}_4)_2[\text{Pt}_2(\text{HPO}_4)_4(\text{H}_2\text{O})_2]$  (VI) etc,  $(\text{H})_{2+n}(\text{NH}_4)_2\cdot\text{Pt}_2(\text{HPO}_4)_4(\text{H}_2\text{O})_2$  (VII); phosphatodiamines  $\text{cis-(H)}_n[\text{Pt}_2(\text{NH}_3\cdot\text{L})_2(\mu\text{-HPO}_4)_2]$  (VIII, IX),  $(\text{L}=\text{NH}_3, \text{H}_2\text{O})$ ,  $n \geq 0$ . Molecular structures of the compounds IV-IX were derived from analysis of AB, IR, XPS, ESR and RDF spectra: binuclear clusters (VI, VII) and oligomeric chains consisting of platinum atoms bonded both by direct metal-metal interaction and by bridging groups (IV, V, VIII, IX) (1). III, IV, VIII, IX are classified as platinum blues of a new type with inorganic anions as bridging ligands:  $\text{NO}_2^-$  (IV),  $\text{HPO}_4^{2-}$  (III, VIII, IX). IV is the first trans-platinum blue. cis-Diamines form adducts in which the medium molecules are bonded with cis-ammonias. trans-Diamines do not form such adducts. Paper (1) presents a general mechanism of compound formations consisting in generation of intermediate Pt(III) forms followed by interaction with environmental species.

(1) G.S.Muraveiskaya, V.E.Abashkin, O.N.Evstaf'eva, I.F. Golovaneva, Zh. neorgan. Khimii, v. 34, No 4 (1989).