

# Drei neue Koordinationsverbindungen mit komplexen Metallkationen $[M(X)_6]^{n+}$ ( $M = \text{Co}: X = \text{H}_2\text{O}, \text{NH}_3$ und $n = 3$ ; $M = \text{Ni}: X = \text{H}_2\text{O}$ und $n = 2$ ) und Hydrogenacetylendicarboxylat als Anion

Three New Coordination Compounds with Complex Cations  $[M(X)_6]^{n+}$  ( $M = \text{Co}: X = \text{H}_2\text{O}, \text{NH}_3$  and  $n = 3$ ;  $M = \text{Ni}: X = \text{H}_2\text{O}$  and  $n = 2$ ) and Hydrogenacetylenedicarboxylate Anions

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From an aqueous solution containing acetylenedicarboxylic acid ( $\text{H}_2\text{ADC}$ ) and  $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$  or  $\text{Ni}(\text{O}_2\text{CCH}_3)_2 \cdot 4\text{H}_2\text{O}$  single crystals of  $[\text{Co}(\text{H}_2\text{O})_6][(\text{ADC})(\text{HADC})] \cdot 2\text{H}_2\text{O}$  (**1**),  $[\text{Co}(\text{NH}_3)_6][\text{Cl}_2(\text{HADC})] \cdot \text{H}_2\text{O}$  (**2**) and  $[\text{Ni}(\text{H}_2\text{O})_6](\text{HADC})_2 \cdot 2\text{H}_2\text{O}$  (**3**) precipitated upon slow evaporation of the solvent. In their crystal structures slightly distorted octahedral coordination spheres of the metal ions ( $[\text{Co}(\text{H}_2\text{O})_6]^{3+}$ ,  $[\text{Co}(\text{NH}_3)_6]^{3+}$  and  $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$ ) are found. These complex cations are further connected *via* weak hydrogen bonds to structural units of higher dimensionality. All compounds contain mono-protonated acetylenedicarboxylate anions ( $\text{HADC}^-$ ). In **1** strong hydrogen bonds ( $\text{O} \cdots \text{O} = 2.524(5)$  Å) form  $\text{ADC} \cdots \text{HADC}^-$  dimers, whereas in **2** ( $\text{H}_2\text{O} \cdots \text{HADC}^-$ ) $_{\infty}$  ribbons ( $\text{O} \cdots \text{O} = 2.496(4)$  Å and  $2.676(3)$  Å, respectively) and in **3** ( $\text{HADC}^-$ ) $_{\infty}$  chains ( $\text{O} \cdots \text{O} = 2.489(3)$  Å) are found. **1** and **2** represent new structure types, whereas **3** is isotopic to the known Mg and Zn compounds.

*Key words:* Cobalt, Crystal Structure Analysis, Hydrogenacetylenedicarboxylates, Hydrogen Bonds, Nickel