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Synthesis, structure and catalytic activity of novel polyoxomolybdate $C_{22}H_{47}Mo_4N_{12}O_{15}$ in the azide- alkyne cycloaddition reaction.

Asmaa Yousofvand[a], Mojtaba Amini[b,*], Mojtaba Hosseinifard[c]

[a] *Department of Physical Chemistry, Faculty of Chemistry, University of Tabriz, Tabriz, Iran*
[b] *Department of Inorganic Chemistry, Faculty of Chemistry, University of Tabriz, Tabriz, Iran*
[c] *Department of Energy, Materials and Energy Research Center, Karaj, Iran*
**mojtaba_amini@tabrizu.ac.ir*

A new polyoxomolybdate with a formula of $(C_7H_{15}N_4)_3[CH_2Mo_4O_{15}]$ was synthesized and then it was characterized using IR, EDX and X-ray crystallography. The unit cell of 1 consists of three N-methyluroptropine $(C_7H_{15}N_4)^+$ cations, and one polyanion $[CH_2Mo_4O_{15}]^{3-}$ (Fig. 1). In the polyanion $[CH_2Mo_4O_{15}]^{3-}$, molybdenum metals are surrounded by two terminal and two bridging μ2-oxygen atoms, one μ_4- bridging hydroxyl ligand and also one oxygen of the methanediol ligand is coordinated to each molybdenum metal.

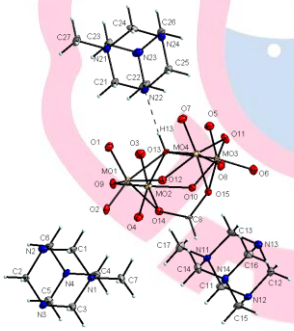


Fig. 1 View of the $(C_7H_{15}N_4)_3[CH_2Mo_4O_{15}]$ with labelling of the atoms.

This novel polyoxomolybdate was used as an efficient catalyst for the azide–alkyne cycloaddition reaction to produce various 1,2,3-triazoles in high yields. During this cycloaddition reaction, some effective parameters on the reaction such as the amount of catalyst, reaction temperature, and time of reaction were studied[1].

Keywords: Polyoxomolybdate, Catalytic activity, Azide-alkyne cycloaddition reaction.

Refrence

[1] A. Yousofvand, M. Amini, M. Hosseinifard, J. Janczak ″Synthesis, structure, and catalytic activity of polyoxometalate $(C_7H_{15}N_4)_2[Co(H_2O)_6][C_6H_{12}N_2CoMo_6O_{24}]\cdot 4H_2O$ in the azide–alkyne cycloaddition reaction″ Polyhedron 236 (2023) 116367- 116373.