22nd Iranian Chemistry Conference, 23-25 August, 2023
University of Kurdistan

Synthesis and Characterization of nanoClinoptilolite /cobalt oxide nanocomposite

Hossein Ebadipour,[a] Hasan Ebadipour, [b] and Alireza Akbarzadeh[c],*

[a]*Department of Chemistry, Masters of Inorganic Chemistry , University of Science and Technology of Iran, Tehran, Iran*

[b]*Department of Chemistry, Masters of Inorganic Chemistry , University of Science and Technology of Iran, Tehran, Iran*

[c]*Department of Chemistry, Faculty of Inorganic Chemistry , University of Science and Technology of Iran, Tehran, Iran*

[*] *E-mail: a_akbarzadeh@iust.ac.ir*

Zeolites, a member of the microporous crystalline aluminosilicates family, also known as "molecular sieves". Zeolite has the three-dimensional structures which are composed of the networks of $[SiO4]^{4-}$ and $[AlO4]^{5-}$ tetrahedral linked to each other with oxygen atoms .Natural zeolites are abundant in nature and have operational importance, including: clinoptilolite. mordenit [1].This work synthesis an novel adsorbent nanozeolite/Co_3O_4 (NZC) with high adsorption capacity by combining modified natural clinoptilolite nanozeolite and cobalt oxide to enhance the adsorption ability of zeolite. Characterization of the final nanocomposite was done by XRD pattern, Field Emission Scanning Electron Microscope (FE-SEM) and Energy-dispersive X-ray spectroscopy (EDS). The XRD pattern results confirmed the correctness of the nanocomposite synthesis and SEM images and EDS reveal the appropriate particle size and element distribution. The prepared adsorbent can be used to absorb cationic pollutants and heavy metals [2-4].

Keywords: Cobalt oxide, Clinoptilolite, Zeolite, Adsorbent, Aluminosilicate.

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