APPLICATIONS OF ZIF-8 NANOMATERIAL AS PHOTOCATALYST IN BISPHENOL A REMOVAL: A MINI-REVIEW

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Bisphenol A (BPA) is regarded as an endocrine disrupting compound (EDC) because of its harmful effects on endocrine system of humans. BPA is releasing to the environment by the way of industrial processes such as epoxy resin and polycarbonate plastic production [1]. BPA contained materials are optical and electronic devices, reusable plastic bottles, containers, dishes, cups and bowls which can be used for food protection and put. Besides that, metal food cans also include BPA because they have epoxy resin film [2]. Photocatalytic adsorption can be thought as the most energy-saving and economical way to degrade pollutants from water. So, for this purpose the researchers have studied on novel materials which have high removal efficiency. Metal organic Frameworks (MOFs) are important materials which have several features like high surface area, high crystallinity, regular pre structure and adaptable with polymers. As a type of MOFs, ZIF-8 has a skeleton which is composed of 2-methyl imidazole ligand and Zn atoms. ZIF-8 can be synthesized by using so many feasible synthesis methods. Besides that, it has thermal stability up to 500 °C. And, it can keep its skeleton in several organic solvents and water [3]. To the best of the author's knowledge, there are extremely low papers in literature for BPA removal from water with ZIF-8 photocatalyst. And the topic is new in literature. So, the aim of this study is actually drawing attention to this topic. Shao et al. (2020) were synthesized ZIF-8 on N-$K_2Ti_4O_9$ surface in methanol environment. They found that this composite had 9 times higher photocatalytic activity than pristine N-$K_2Ti_4O_9$ for BPA removal under visible light [4]. Zheng et al. (2021) were synthesized a complex photocatalyst by doping ZIF-8 and AgBr on the surface of protonated graphitic carbon nitride (g-C_3N_4). They conducted the experiments at room temperature during 2 hours under xenon light. The results which are obtained by the researchers were the composite including ZIF-8 was stable and good ability to remove BPA (up to 70%) even after four experiments [5].

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