·基础与临床研究·

牙科修复用 $BiOIO_3/g-C_3N_4$ 复合纳米光催化剂的制备与表征

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【摘要】 **目的**　研究不同剂量 NaOH 条件对制备 $BiOIO_3/g-C_3N_4$ 复合纳米光催化剂的结构形貌及其可吸收光谱的影响，为研制适用于口腔修复纳米光催化功能性材料提供依据。**方法**　水热法制备 $BiOIO_3/g-C_3N_4$，通过 XRD（X 射线衍射仪）、SEM（扫描电镜图）和 UV-vis（紫外 - 可见光吸收光谱）对其形貌、结构、分子组成和理化特性等进行表征。**结果**　在 5mol/L 的 NaOH 溶液条件下制备出 $BiOIO_3/g-C_3N_4$（BC-5），其（010）峰和（040）峰的强度最弱，（121）峰的强度最强，形貌呈方形块状，出现圆角形状，尺寸在 100~200 nm 范围，厚度约为 60 nm。其富含异质结构，禁带宽度降低，吸收光谱红移，光吸收边界有明显拓宽。**结论**　g-C3N_4 掺杂形成了 Z 型异质结构，提高了电子 - 空穴分离效率，提升了可见光响应性能。该结果为新型牙科修复功能性光催化材料的选择提供了一定的理论依据。

【关键词】光催化剂　$BiOIO_3/g-C_3N_4$　制备　表征

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Preparation and characterization of $BiOIO_3/g-C_3N_4$ composite nano-photocatalyst for dental restoration

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【**Abstract**】 **Objective**　The aim of this study was to detect the effects of different doses of NaOH on the structure and morphology of the as-prepared $BiOIO_3/g-C_3N_4$ and its absorption of spectroscopy, so as to provide a basis for the development of functional nano-photocatalytic materials suitable for dental restoration. **Methods**　$BiOIO_3/g-C_3N_4$ was prepared by hydrothermal method. The morphology, structure, molecular composition and physical and chemical properties of $BiOIO_3/g-C_3N_4$ were characterized by XRD, SEM and UV-vis. **Results**　$BiOIO_3/g-C_3N_4$ (BC-5) was prepared in the presence of 5 mol/L NaOH solution. The strength of peak (010) and peak (040) was the weakest, and the strength of peak (121) was the strongest. The morphology of $BiOIO_3/g-C_3N_4$ (BC-5) was square-shaped with rounded corners, the size ranged from 100 nm to 200 nm, and the thickness was about 60 nm. It is rich in heterostructures, the band gap is reduced, the absorption spectrum is redshifted and the light absorption boundary is widened obviously. **Conclusion**　The g-C3N_4 doping can form Z-type heterojunction, which can improve the efficiency of electron-hole separation and enhance the responsive

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