

ABSTRACT

The present invention discloses a preparation method of a silver-modified spiral Titanium Dioxide (TiO_2) nano-fiber photocatalyst, comprising the following steps: preparing a spiral TiO_2 nano-fiber; preparing a nano-silver aqueous solution; and preparing a silver-modified spiral TiO_2 nano-fiber photocatalyst. The photocatalyst is coupled with the spiral structure of the nano-fiber and nano-silver particles with a specific size, enhancing the Surface Plasma Resonance (SPR) effect, exciting the SPR effect through resonance to the maximum extent, and improving absorption of the photocatalyst to visible light, so as to improve the photocatalytic activity of the photocatalyst. Moreover, the sterilizing and biological pollution resisting capacities of the photocatalyst are also improved through the modified nano-silver particles. In addition, the visible light photocatalyst of the present invention is good in light stability and can be reused, organic pollutants of complex structures can be efficiently degraded, pathogenic bacteria can be degraded and inactivated, the inactivating efficiency is not obviously reduced when the photocatalyst is reused, and therefore, the photocatalyst can be widely applied to a deep sewage treatment system.