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Journal Name:	Chemical Science International Journal
Manuscript Number:	Ms_CSIJ_35086
Title of the Manuscript:	Preparation, Microstructure and Performance of Activated FA / TiO ₂ -WO ₃ Composite Photocatalyst
Type of the Article	-----

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	Remarks Title Preparation, Microstructure and Performance of Activated FA / TiO₂-WO₃ Composite Photocatalyst R1 : This is not original work . A similar work was published under the same activity “Tungsten oxide and fly ash mixtures for single step wastewater treatment process JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS Vol. 12, No. 2, February 2010, p. 406 - 410 “ Abstract The results showed that the activated FA increased specific surface area by H₂SO₄ soaking and the modified FA was more beneficial to loading photocatalysts via tetrabutyl titanate sol processing R2: How much double triple or what ? photocatalys showed the higher photocatalytic degradation efficiency under UV irradiation, the	R1 : This work is different from “Tungsten oxide and fly ash mixtures for single step wastewater treatment process “,This research focused on how ease to supported photocatalyst via activating and modifying method. R2: The specific surface area data have been compared with raw FA in paper. R3: Add “on methyl orange(MO)”. R4: Add Key words- methyl orange dye. R5: Added to air , soil and water pollution,etc in paper. R6: Added TiO₂-WO₃/FA composite photocatalytic.



SDI Review Form 1.6

	composite photocatalys decolorization efficiency with wt5% R3; degradation of what Key words: FA; TiO₂-WO₃; composite photocatalyst; microstructure R4: In the key words we do not see the objective of the work, 1. Introduction FA as the solid by-product of coal-fired power plants was recognized to pose huge environmental problems R5: which kind of problems treated with butyl titanate sol,the modified FA was used as carrier for the immobilization of industrial nano-TiO₂-WO₃ photocatalyst R6: what you mean by composite photocatalyst 2. Experimental 2.2 Activation and surface modification of FA , the solution was under vigorous stirring for 4h at 40 °C, R7: if the time is 3 or 5 h what will happen . The suspension was afterwards filtered,the obtained product is surface modified FA. R8; what were the suspension materials 2.3 Preparation of nano-TiO₂-WO₃/FA composites photocatalyst the samples were calcined in the muffle furnace at	R7: The time is fully dissolve for 4h. R8: Add “FA particles”.
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	450□ for 4 h. The TiO₂-WO₃/FA composite photocatalyst R9: what you expect to obtain by the calcination 2.4 Photocatalytic activity test ultraviolet light lamps (wavelength 2537 Å) R10; why you select this lamp as source of irradiation 3.Results and discussion XRD analysis R11: Do you thing that the XRD measurement will give added value to your products 3.2 SEM and EDS analysis R12; where are the advantages in this pictures R13: the legend for figure 2 is very bad 3.3 Photocatalytic activity studies under 40w UV light irradiation R14: what kind of lamp did you use for irradiation at what wavelength? R15: the legend of figure 4 is not clear In order to evaluate photocatalytic activity of composite photocatalyst, the photocatalytic degradation of MO(20mg/L)was carried out under 40w UV light irradiation [10]. The condition was fixed with the 50mL MO solution, 200mg composite photocatalyst and 30min time R16; the sentence is not clear the different TiO₂-WO₃ loading capacity of composite photocatalyst R17: what you mean by loading capacity It can be seen that the TiO₂-WO₃ loading capacity has a great influence on the photocatalytic decolorization performance R18: I have not observed anything	R9: The tetrabutyl titanate-ethanol-triethanolamine(organic matter) were removed by the calcination. R10: The ultraviolet light lamps is fixed due to purchase. R11: Add” the diffraction peak position and intensity have changed partly”in revision paper. R12:Compare with integrality and partial photo. R14: This question have answer in 2.4-63. R15: The figure 4 have been revised. R16: Add “The photocatalytic activity were tested at the different TiO₂-WO₃ loading capacity”. R17:Revised as “The Fig.4 show the photocatalytic activity of composite photocatalyst at the different TiO₂-WO₃
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	. It may be noted that the decolorization efficiency is about 58%, when have not $\text{TiO}_2\text{-WO}_3$ R19: how you determined this 58% The reason was attributed to excitation and modify FA by H_2SO_4 and titanium sol, the decolorization ratio is mainly in connection with adsorption of FA and a small amount of TiO_2 film photocatalysis process with the surface of FA was modified by titanium sol [11]. R20 Your explanation is not convenient With the increasing of the $\text{TiO}_2\text{-WO}_3$ loading amount in the range wt0.5%-5%, the decolorization efficiency increases from 76% to 97% after 90 min R21 : one more time how you follow the decolorization R22; why the decolorization take so much time The reason may be a more photocatalyst suspension may lead to decrease of its transparency resulting in less efficient radiation penetration R23: Your experience was running with magnetic stirrer why the transparency should play a role Fig.5 Effect of photocatalytic degradation time on decolorization rate R24: Effect of time and sulphuric acid activation was shown in Fig.5. A significant increase in photocatalytic activity is exhibited by the as-prepared composite photocatalysts, the degradation and discoloring rate reach over 80% in 10min, the decolorization rate appeared gradually increasing with time extension and reached more than 97% at 90min under UV radiation. R25; this is not clear in the figure	amount supported on FA”. R18: The decolorization efficiency increase with $\text{TiO}_2\text{-WO}_3$ supported amount increasing. R19: The first point in Fig.4. R20 :“the decolorization ratio is mainly in connection with adsorption of FA and a small amount of TiO_2 film photocatalysis process with the surface of FA was modified by titanium sol” was deleted. R21 :The different loading amount samples were tested respectively under 90 min. R22: For comparing with the different loading amount samples. R23: The much more photocatalyst effect Dispersion of Light. R24:Revised as “Fig.5 Effect of decolorization rate at photocatalytic degradation time”. R25: The data point have clearly showed in Fig.5.
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	4.Conclusions The results showed that the activated FA increased specific surface area by H₂SO₄ soaking and the modified FA was more beneficial to loading photocatalysts via tetrabutyl titanate sol processing R26: What is the percentage of specific surface area increased? .The as-preparativated TiO₂-WO₃/FA composite photocatalys showed the higher photocatalytic degradation efficiency under UV irradiation R27: is the photocatalytic efficiency was due only to the specific surface Further increasing the catalyst dosage from wt6%-10% resulting in a slight decrease in the decolorization efficiency R28; can you explain why References R29: The references are old and the authors are not up to date about the subject. Conclusion This work is not original Experimental section is very week and some of them	R26: Revised as “The results showed that the specific surface area of activation FA was 15.5m²/g, which is larger than that of raw FA (8.2m²/g) by H₂SO₄ soaking”. R27: No, TiO₂-WO₃ loading amount also influence . R28:This question have been explained in3.3(150-176).
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	are not necessary Interpretations are not well described Photocatalytic section is not complete	
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		