**Manuscript ID:** 2838

**Title:** Aminobenzene sulfonic acid-functionalized carbon nanotubes on a glassy carbon electrode for probing traces of mercury(II)

**Journal:** Journal of the Serbian Chemical Society

**Soc.Authors:** JING LV, YING TANG, LIUMEI TENG, DIANYONG TANG, JIN ZHANG

Dear Prof. Slavica RAZIC,

 Thank you very much for your letter and for the reviewers’ comments concerning our manuscript entitled “**Aminobenzene sulfonic acid-functionalized carbon nanotubes on a glassy carbon electrode for probing traces of mercury(II)**” (Manuscript ID: 2838). Those comments are all valuable and helpful for revising and improving our paper further. We have studied the reviewers’ comments carefully and made modifications and corrections which we hope meet their approval. These revisions are briefly summarized below. For clarity, the modified parts of the revised manuscript are presented here and highlighted in yellow. We hope that the manuscript is now suitable for publication in **Journal of the Serbian Chemical Society**.

Sincerely,

Jin Zhang

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**Reviewers' comments:**
**Reviewer A：**

Recommendation: This manuscript should be published after minor revision without additional review

Comments: Please indicate the page numbers for suggested corrections. Please, be as specific as possible if major correction by the author(s) is recommended! : The paper can be published after minor correction reflecting comments inserted as yellow notes into attached **pdf** of submitted manuscript.

The authors might want to correct the following issues:
(1) There are some some format, grammar, word and phrase errors or lacks.

**Author reply:** Thank you for your valuable advice. The advice as yellow notes into attached pdf has been taken seriously and these mistakes have been corrected as below in the revised manuscript.

From example:

P1 line 16: The word “were” in the initial manuscript has been corrected to “have”;

P2 line 2: The phrase “importantly significant” in the initial manuscript has been corrected to “very important”;

P3 line 23: The space has been inserted between “(p-ABSA)” and “were”;

P5 line 7: The word “it” has been inserted between “turns” and “into”.

(2) P2 lines 14-18: improve English here and in all denoted English sentences.

**Author reply:** Thank you for your valuable advice. The advice has been taken seriously and this sentence has been deleted and replaced by sentence as below in the revised manuscript.

The sentence “To develop a high-efficiency electrochemical sensor for the detection of trace Hg(II), the electron transfer between the solution and the underlying electrode not only provides the model for the mechanism study of electron transports, but also enables to construct a highly sensitive reactor.” in the initial manuscript has been corrected to “The electron transfer between the solution and the underlying electrode not only provides the model for the mechanism study of electron transports, but also enables to construct a highly sensitive reactor. Therefore, to develop a high-efficiency electrochemical sensor for the detection of trace Hg(II), exploring suitable materials for the fabrication of electrochemical sensors is of great interest.”

(3) P7 lines 18-19: improve English.

**Author reply:** Thank you for your valuable advice. The advice has been taken seriously and this sentence has been corrected by sentence as below in the revised manuscript.

The sentence “and the electrode's surface area are limited, which make the instability of operation and is against the experiment” in the initial manuscript has been revised to “The small electrode's surface area give rise to the instability of operation and go against the experiment.”

(4) P3 line 5: what is meant by irritation?

**Author reply:** Thank you for your question. In this context, the word “irritation” means “interfere or disturb something”. The phrase “minor irritation” means “little interference”, and the phrase “minor irritation” in the initial manuscript has been corrected to “little interference”.

(5) P4 line 12: what is meant by stave?

**Author reply:** Thank you for your careful work. The word “stave” was wrongly used to express the meaning of “dried”, we have corrected the mistake.

(6) P5 line 19: nothing can be seen on the insert?

**Author reply:** This is the SEM image of clean bare GCE. The GCE was carefully polished and sonicleaned to obtain a mirror-like surface, so nothing can be seen on the clean bare GCE. And the word “clean” has been inserted before the word “bare”.

(7) P9 line 12: Fig 5. (B) There should be zero on both axis at origin to see the intercept. Intercept seems to be relatively large. Perhaps there should be some comment on it.

**Author reply:** Sorry for our unclear description! Since the modified poly-pABSA-SWCNT on the GCE possessed the electrochemical activity, it had certain ASV peak current (*i.e.*, the background signal) in the absence of target Hg2+. In this case, the intercept of the fitted linear regression equation should not be zero. The reason on the relatively large intercept was attributed to the background signal. To avoid possible misunderstanding, the comment on this issue was added in the revised text [P9 lines 10-11]: The reason on the relatively large intercept in the regression equation mainly derived from the electroactive poly-pABSA-SWCNT immobilized on the GCE.

**Reviewer B：**

Recommendation: In my opinion, this manuscript should: be published after minor revision without additional review.

Comments: Please indicate the page numbers for suggested corrections. Please, be as specific as possible if major correction by the author(s) is recommended! :

(1) The application of unmodified SWCNTs and functionalised SWCNTs is not over viewed in details (analysis of organic compounds and selected metals). The introduction can be expanded with some applications concerning the carbon based electrodes surface or bulk modified with SWCNTs as Zorica S. Stojanović , Eda Mehmeti, Kurt Kalcher, Valéria Guzsvány, Da.libor M. Stanković, SWCNT-modified carbon paste electrode as an electrochemical sensor for histamine determination in alcoholic beverages, Food Analytical Method, DOI 10.1007/s12161-016-0452-3.

**Author reply:** Thank you for your suggestions. We really agree with the referee's suggestion. According to the referee’s comment, the sentence “Many researchers have applied SWCNT or functionalized SWCNT to analyze organic compounds and selected metals as [[17-19](file:///F%3A%5C%E5%90%95%E9%9D%99%5C%E5%AE%9E%E9%AA%8C%E4%B8%80%5C%E6%96%87%E7%AB%A0%5Cpaper20160418.docx#_ENREF_17)]. And many carbon based electrodes surface or bulk modified with SWCNTs have been used for monitoring and analysis, such as carbon paste electrode [[17](file:///F%3A%5C%E5%90%95%E9%9D%99%5C%E5%AE%9E%E9%AA%8C%E4%B8%80%5C%E6%96%87%E7%AB%A0%5Cpaper20160418.docx#_ENREF_17)] and  carbon fibers electrode[[20](file:///F%3A%5C%E5%90%95%E9%9D%99%5C%E5%AE%9E%E9%AA%8C%E4%B8%80%5C%E6%96%87%E7%AB%A0%5Cpaper20160418.docx#_ENREF_17)].” has been added in “INTRODUCTION”. [P2 line 25-29].There are some references which are added into the revised manuscript, such as “Food Analytical Methods 2016, 1-10; Analytical chemistry 2009, 81, 7271-7280; Analyst 2005, 130, 1098-1101; Chemical Research In Chinese Universities 2003, 24, 808-810”.

(2) Based on my experiences the simply immobilization of SWCNTs on the GCE surface is not easy.  How did you fixed the SWCNTs on the freshly polished GCE?

**Author reply:** Thank you for your careful work.

 In this paper, the author adopted common and simply method to fix the SWCNTs on the freshly polished GCE: Prior to experiment, 1.0 mg of SWCNTs was dispersed into 1.0 mL DMF with the help of sonication for 20 min to obtain the homogenous SWCNT suspension. Then 4 µL of the above-prepared SWCNT suspension was cast onto the cleaned GCE by using microsyringe and stave under the infrared lamp. [P4 lines 8-9, 12-14].

 We turn to lots of related articles, for example, the references 14-16, the method is feasible and effective. And according to SEM image from Fig. 1B in the manuscript, SWCNTs layers dropped on GCE are randomly distributed along the electrode.

(3) More experimental details about the comparative measurement technique is required from the Experimental part till the Results and discussion part.

**Author reply:** Thank you for your valuable advice. The advice has been taken seriously and more experimental details about the comparative measurement technique has been added and revised by sentence as below in the revised manuscript:

[P4 lines 3-5]The sentence “The comparative measurement was carried out by Purkinje T9 UV-Visible spectrophotometer (Purkinje General Instrument Co., Ltd., China)” has been added in the Experimental part.

[P10 lines 10-15] The sentence “The obtained results were compared with colorimetry of dithizone by the UV-Visible spectrophotometer. The method (GB5750-85) is carried by National Standards of the People's Republic of China, which is of high accuracy. The comparative results are presented in Table I. Each sample was determined 3 times. The detection results of the two methods were basically the same. The RSDs were 1.1-5.8 %, verifying the practical applicability of the method. ” has been added in the Results and discussion part.

(4) Information about the type of the glassy carbon electrode is missing as well together with its diameter.

**Author reply:** Thank you for your kind instructive comments and helpful suggestions. We really agree with this suggestion. We have revised and added some information: [P3 lines 29-30]: “including a modified glassy carbon disk electrode (GCE, *d*=4 mm) as the working electrode,”.

(5)Figure 2 the baselines curves recorded with each sensor surfaces can be added as well.

**Author reply:** Thank you for your valuable advice. The advice has been taken seriously and the baselines curve (Figure 2a) recorded with each sensor surfaces has been added in the Figure 2 as below in the revised manuscript [P6 line 20]:

