



SDI Review Form 1.6

PART 1:

Journal Name:	British Journal of Applied Science & Technology
Manuscript Number:	MS: 2012/BJAST/2192
Title of the Manuscript:	EFFECTS OF HEAVY METALS ON MICROBIAL FUNCTION IN WATER AND SEDIMENT AROUND ABONNEMA ISLAND AT LOWER SOMBRIERO RIVER, NIGERIA

General guideline for Peer Review process: *(Note: Title of different sections as proposed below may differ in case of review paper / case reports)*

- *Is the problem/objective of this study original and important? SCIENCEDOMAIN international strongly opposes the practice of duplicate publication or any type of plagiarism. However, studies which are carried out to reconfirm / replicate the results of any previously published paper with new dataset, may be considered for publication. But these types of studies should have a 'clear declaration' of this matter. If you suspect any unethical practice in this manuscript, kindly write it in the report with some proof/links.*
- *Materials & methods (Kindly comment on the suitability and technical standards of the methods. Sufficient details of the methods/process should be provided so that another researcher is able to reproduce the experiments described)*
- *Results & discussion (Kindly comment on: 1. Are the data well controlled and robust? 2. Authors should provide relevant and current references during discussion. 3. Discussion and conclusions should be based on actual facts and figures. Biased claims should be pointed out. 4. Are statistical analyses must for this paper? If yes, have sufficient and appropriate statistical analyses been carried out?)*
- *Conclusion (Is the conclusion supported by the data, discussed inside the manuscript? Conclusions should not be biased and should be based on the data, presented inside the manuscript only. Authors should provide adequate proof for their claims without overselling them)*
- *Are all the references cited relevant, adequate? Are there any other suitable current references authors need to cite?*
- *SDI believes in constructive criticism. Reviewers are encouraged to be honest but not offensive in their language. It is expected that the reviewer should suggest the authors on how they can strengthen their paper to make it acceptable. Comments of the reviewers should be sufficiently informative and helpful to reach a Editorial Decision. We strongly advise that a negative review should also explain the weaknesses of any manuscript, so that the concerned authors can understand the basis of rejection and he/she can improve the manuscript based on those comments. Authors also should not confuse straightforward and true comments with unfair criticism.*
- *We are very much reluctant to go against suggestions (particularly on technical areas) of the reviewers. Therefore, authors are requested to treat the suggestions of reviewers with utmost importance.*
- *This form has total 9 parts. Kindly note that you should use all the parts of this review form.*



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PART 2: Review Comments

	Reviewer's comment	Author's comment <i>(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)</i>
Compulsory REVISION comments	Line 89-91: A major paper like this should not be started with references that are 30 years old or more except the authors' imply no other work had been done in the area since the last report. Line 98-99: The material in bracket is not clear. Line 179-182: The idea behind the work is good but the approach is wrong. The authors stated that the subject of study had a long history of heavy metal pollution from spills etc., In my opinion, heavy metal contamination induces community structural shifts tending toward the dominance of resistant strains. Such shifts may lead to changes in certain metabolic activities as some sensitive members of the microbial communities able to perform specific functions may be depleted. By studying this site that is already polluted and without a control experiment, the authors may have documented the responses of a community of microbes already adapted to high concentrations of different metals in the river. A simulation study may have provided a more accurate picture of microbial response in the study area or at least a control included. Line 239-249: The authors' reason for including palm oil and 'cowbell' powdered milk in the cultivation media is not clear. Palm oil contains an assemblage of organic acids of differing concentrations as well as numerous lipolytic microorganisms. The use of any of the tweens could have made a better choice. For protein sources, casein is more preferable to 'cowbell powdered milk'. The milk is equally a mixture of many compounds. Also, the author's did not highlight the initial concentration of Pb, Cu, Zn and Cd in the water and sediments before their own addition. Line 252-265: How did the authors arrive at the concentration of glucose, palm oil, cowbell milk and metal salts that were added to the media?	Old references deleted though there is paucity of information in this area. It is made clearer. Station 7 served as control as indicated. The reasons are stated. The initial concentrations of the metals were published earlier. Explained in section 2.5.2



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	Line 279-280: Usually, the reactions of the microbial component to a pollutant are investigated from factors related to their enzymatic activities. Soil enzymes are sensitive indicators of both natural and anthropogenic disturbances and have been found to be of substantial value as indicators of microbial activity. The important enzymes are the ones involved in the cycling of C(Beta-glucosidase), N(protease, urease), P(phosphatase) and S(sulphatase). Line 314- 315: The determination of total heterotrophic counts, total coliform counts, total faecal counts and petroleum degrading bacteria count by the authors in an effort to monitor microbial responses to metal pollution in the present study is not helpful. Ecotoxicological studies usually involve measurement of community responses not group of microorganisms. This is because, a vast majority of microbes (>95%) are not cultivable by currently available techniques. Therefore, application of tools such as total biomass carbon, total respiration, phospholipids fatty acid analysis etc., enables one quantify the totality of all microbial responses and helps show community shifts in response to presence of toxic compounds. Line 326-366: Results were very poorly arranged and presented e.g. The items under levels of physico-chemical parameters measured in water and sediments (Table 1) should be collectively reported under one heading. There should also be some fluidity in the description of the results. Line 371-499: Same as above. In addition, authors used very old and limited references e.g. RSMENR, 2002 occurred almost in all the items discussed.	For further study. For general information. Tools suggested are for further study. Corrections effected. Emphasis was on local guidelines which are adapted from international guidelines.
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Minor REVISION comments		
Optional/General comments	1. The problem/objective of study is original and important. 2. The design and technical quality of the 'material and methods' section has serious flaws. 3. (i) Data was not properly controlled (ii) Authors used outdated references (iii) Discussion was not robust (iv) The level of statistical analysis was sufficient and appropriate. 4. The language quality of the entire manuscript need to be comprehensively reviewed.	Errors have been reviewed.