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PART 1:

Journal Name:	American Journal of Experimental Agriculture
Manuscript Number:	2013_AJEA_4412
Title of the Manuscript:	COMPARATIVE EVALUATION OF NEEM LEAF (<i>Azardirachta indica</i> L), WOOD ASH AND MODIFIED NEEM LEAF EXTRACTS ON THE SOIL CHEMICAL COMPOSITION, GROWTH AND YIELD OF PLANTAIN (<i>Musa sapientun</i> L)
Type of the Article	Research paper

General guideline for Peer Review process is available in this link:

<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>

- This form has total 7 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 (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	1. The title must be changed (Pl. see attachment). The scientific names of both neem and plantain are wrongly spelled. "Modified neem extract" is not specific; it is confusing; actually mixed extracts of neem leaf and wood ash (1:1) were used. The title may be " Effects of water extracts of neem (<i>Azadirachta indica</i> L.) leaf, wood ash and their mixtures on soil chemical composition, and growth and yield of plantain (<i>Musa sapientum</i> L.)" Line 2: <i>Azadirachta indica</i> L. (not Azardirachta indica L) Line 4 & 5: <i>Musa sapientum</i> L. (not Musa sapientun L) [I have downloaded two other published papers of Dr Jesu. Including the present one, all the three papers have similar titles; all starting with "Comparative evaluation of neem -----). Only the crop differed. This is not a good practice. The present title is long; scientific names of both neem and plantain are wrongly-spelled; the phrase "modified neem leaf extract" is confusing; it is actually mixed neem and wood ash extract at 1:1.] My suggestion is to change the title to: Effects of water extracts of neem (<i>Azadirachta indica</i> L.) leaf, wood ash and their mixtures on soil chemical composition, and growth and yield of plantain (<i>Musa sapientum</i> L.) [Dr. Jesu should be more careful in writing scientific names of	ANSWERS TO REVIEWER ONE COMMENTS 1. COMPULSORY <u>Revision Comments</u> 1. The title had been modified as suggested by the reviewer in the manuscript. Line 2A – This had been corrected in the manuscript. Line 4-5 - This had been corrected in the manuscript. - Modified neem leaf means the mixture of the neem leaf strengthened with wood ash. Although, I have re-written in the manuscript as mixed neem and wood ash extract.



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	plants. In another of his paper (COMPARATIVE EVALUATION OF MODIFIED NEEM LEAF AND WOOD ASH EXTRACTS ON SOIL FERTILITY STATUS GROWTH AND FRUIT YIELDS OF TOMATO (<i>Lycopersicon esulentum</i> L) published in Global Journal of Bio-Science and Biotechnology 1(2):271-276), he wrote the name of tomato as <i>Lycopersicon esulentum</i>. The correct spelling is L----<i>esculentum</i>.] 2. The 'Abstract' must be revised and re-written; substantial improvement of language is necessary. Here, the author should clearly and briefly mention why the work was undertaken, how the work was done, what were the results of the two experiments (as the author mentions only casually) and how the outcome of both the experiments are related. From a careful reading of the whole manuscript, I could understand that there was one field experiment with five treatments including four amendments and one control. Plant growth and yield parameters were recorded for two consecutive seasons, and soil chemical properties were analyzed before and after crop growing. The lines where correction is compulsory are identified in the attached sheet. The section should be written within one paragraph. Line 23: "Two Field experiments" - What was the 1st expt and what was the 2nd exit? Line 25: growth improvement in place of 'improvement growth' Line 25 & 26: <i>Musa sapientum</i> L. (not <i>Musa sapientium</i> L.) Line 27: The phrase "Three liquid fertilizer treatments" should be replaced by "Treatments with water extracts of three plant materials" Line 28 & 29: NPK 15-15-15 ?; NPK 15-15-0? There is no NPK	2. The abstract had been written properly as suggested by the reviewer. - Line 23: It had been written as done in the manuscript. - Line 25, 26 and 27: Corrections had been effected in the manuscript. - Lines 28 and 29: It is NPK 15-15-15 and sorry
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	15-15 fertilizer. Afterwards in Discussion the author mentioned NPK 15-15-15 fertilizer; which one did he use? Line 28 &29: The author writes “----- leaf extract were applied at 833.3 L/ha in addition, to 300kg/ha NPK 15-15 fertilizer”. Actually, three plant extracts, and one NPK fertilizer were applied separately (Line 161) Line 33: In place of “soil N, P, K, Ca and Mg”, the author should write “total N, available P and exchangeable K, Ca and Mg” as mentioned in the Results section (Line 199) Line 33: The word “fertilizer” may be deleted. Line 37: The sentence “It also increased these growth parameters to neem leaf compared to NPK fertilizer” does not mean anything. Line 44: The phrase “For soil chemical composition” is redundant. O.M, not 0.M Line 48: The phrase “applied at 833.3 L/ha” may be omitted. Line 51: Words or phrases of the title should not be used as keywords. [Surprisingly the abstracts of all three articles of Dr. Jesu, which I mentioned earlier, start with the same phrase “Two field experiments were carried out----“ and I found no details of two experiments in any article. 3. The ‘Introduction’ must also be revised. The author should emphasize not only the use of plantain in Nigeria and elsewhere, but also the significance of neem leaf and wood ash extracts on crop growth. These extracts are rarely used in soil fertility improvement, although neem leaf can contribute to plant protection, neem cake can be used as organic fertilizer and wood ashes are used in improving soil productivity from ancient time. Both neem leaf and wood ash extracts can modify soil chemical environment. The author should provide	for the typographical errors. This had been properly written in all the aspects of the manuscript. - Line 33: This had been corrected in the manuscript. - Line 37: This sentence had been restructured. - Line 44: Correction had been effected. 3. <u>Introduction</u> - This had been revised to include all suggestions made by the reviewer in the manuscript. -
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	background information of his work. (Pl. see the hints attached). The lines where modification is needed are given in the attached comments. Line 55: (Musa sapientium L) wrong spelling; should be --- <i>sapientum</i> L. Line 55: Pl. delete 'of' after family Line 56: stalks? Line 58: 'interestingly' is interesting; pl. delete Line 60: Pl. delete the phrase "for higher productivity"; it is superfluous. Line 67: ----- fertility (Agboola, 1982); not ----- fertility Agboola (1982). Reference citations in many other places are not appropriate. Pl. corrects those too. Line 71: fertilizers in place of fertility; Line 70 – 73: Pl. rewrite the sentence: Efforts aimed at improving the yield and increasing the soil fertility led to the use of inorganic fertility but their uses are limited by high cost of purchase especially by poor resource farmers and the destruction of soil properties on continuous use. (Moyin-Jesu, 2007) Line 74: Pl. use plural of fertilizer Line 78: The word 'research' is not needed Line 79-80: Pl. write specifically "water extracts of wood ash, neem leaf and mixed neem leaf and wood ash" in place of "wood ash neem leaf and modified neem leaf extracts" The author can use the following hints during revising the Introduction (and in Discussion): Apart from medicinal value, neem leaf extract has many uses in plant protection and production. Neem leaf extract can inhibit soil	Lines 55, 56, 58, 60, 67, 71 and 70-73 have been corrected. - Lines 74, 78, 79-80 have been corrected. - The references suggested by the manuscript were used in the manuscript.
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	nematodes (Agbenin et al. 2005). Products derived from Neem can act as powerful Insect Growth Regulators (IGR) and also help in controlling several nematodes and fungi. Neem products reduce insect growth in crops and plants. Thus, neem products can be used as neem insecticide, neem pesticide, neem fumigant, neem fertilizer, neem manure, neem compost, neem urea coating agent and neem soil conditioner (Hossain et al. 2008; Subbalakshmi Lokanadhan et al. 2012). Neem seed extracts can reduce nitrification (Santhi et al. 1986) of applied ammonium sulfate fertilizers and leaching loss of nitrogen. Pot experiments showed that neem extract could increase the use efficiency of chemical nitrogen significantly in soils (Zang et al (2002). Low concentration of neem leaf extract enhances the growth of nitrogen fixing Cyanobacteria in soil (Prasad et al. 2007). In Bangladesh, wood ash is regularly used in banana plantations in terrace areas. Farmers say wood ash prevents diseases and improves water use efficiency. Wood ash is a good source of potash and lime. Wood ash improves the pH of acidic soils in a manner similar to agricultural lime. Research studies have demonstrated significant increases in crop yields resulting from this pH adjustment (Alberta Environment (2002). The Milwaukee Sentinel - Feb 28, 1943 writes the wood ashes are a fine source of potash. The nutrient composition of unleached wood ashes will generally be 0 % nitrogen, 1.0-2.0 % phosphate (P₂O₅) and 4.0-10.0 % potash (K₂O). Wood ashes are 40 to 50% as effective as calcium carbonate in acid neutralizing equivalent, being about 45% CaCO₃. With the composition, it would require 4,000 to 5,000 pounds of wood ashes to be equivalent to one ton of calcium carbonate (www.cceschenectady.org). All these factors could contribute to enhancement of soil fertility and improving crop growth.	
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	Meyers and Kopecky (1998) reported, “Wood ash has probably been added to soil since the time it was first produced. Hopkins (1910) reported field trials in Canada from 1891–1904 using leached and unleached wood ash in wheat, oat, and barley experiments. He implies that wood ash was regulated as a fertilizer material during this era. Indeed, the word “potash” originated from the potassium carbonate produced by leaching wood ash (Adams 1968), and a leaching process was patented as early as 1790. Wood ash has long been regarded as a source of potassium for plant growth (1–13% K by weight), but it also contains appreciable quantities of Ca (20–30%), P (0.3–0.4%), Mg (1–3%), and smaller amounts of S, Mn, Fe, B, Cu, and Zn (Etiegni et al. 1991; Huang et al. 1992; Lerner and Utzinger 1986). 4. The Materials and Methods should be revised in light of the comments given in the attachment. The nutrient composition of the extracts used should be mentioned here, not in Results. It is customary in fertilizer experiments and soil fertility research to mention the amounts of nutrients given in the treatments. The investigator should give an estimate of the amounts of N, P, K, Ca and Mg added to the soil in the 3 L extracts he applied in each plot, in the NPK 15-15-15 fertilizer, and compare results accordingly. The amounts can be obtained from concentration of an element in the water extract. The Materials and Methods could contain the sub-headings: a. Site description, b. Preparation and analysis of extracts, c. Field experiment and d. Soil collection and analysis. The properties of the experimental soil before amendments should also be mentioned in this section. The author should mention specifically that total N, available P, and exchangeable K, Ca and Mg of soil were determined.	4. <u>Materials and Methods</u> - The nutrients composition of the extracts nutrients supplied/kg and soil nutrients before planting were transferred to the material and methods from the results tagged Tables 1, 2 and 3. - The sections suggested by the reviewer; (a) site description (b) preparation and analysis of the extracts (c) field experiment (d) soil collection. - Properties of soil write-up were also included in the materials and methods, -
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	He mentions casually as 'soil N, P, K, Ca and Mg'. Line 93 -94: "A field experiment to evaluate the effects of neem leaf extract, wood ash extract and mixed extracts of neem leaf and wood ash on plantain in the rainforest zone of Akure, Nigeria was conducted during 2006-2009" should replace "The two field experiments were simultaenously carried out at Akure in the rainforest zone of Nigeria between 2006 and 2009 to validate the results". Line 104-106: Reference citation is not appropriate Line 107: Specify Bray 1 extractant. Line 108: "----- not spectronic 20 -----" should be"----- spectronic 20 spectrophotometer-----" Line 109: "Exchangeable K, Ca, Mg and Na -----" should replace "Soil K, Ca, Mg and Na-----" Line 129 – 143: Language needs improvement. Line 148-152: It appears that the extracts could contain inorganic and organic, soluble and suspended materials. The investigator should clearly mention whether only soluble N, P, K, etc. were determined or total N,P,K etc. were done. Line 158: The active ingredient of nemagon should be mentioned. Line 161: NPK 15-15-15? Line 182: "total N, available P, and exchangeable K, Ca, and Mg -----" should replace "N, P, K, Ca and Mg----" Line 185-188: "Analysis of variance followed by Duncan's multiple range test was done according to Gomez and Gomez	Line 93-94: The corrections had been effected as suggested by the reviewer. - Lines 104-106, 107, 108, 109, 129-143 had been corrected. - The extracts were filtered properly to exclude the suspended materials. They included only soluble N,P,K. - Lines 158: Active ingredient of nemagon was mentioned in the manuscript. Lines 161: It is NPK 15-15-15 Lines 185-188: Correction had been effected.
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	(1984)” should suffice. 5. The entire text and table with headings between line 191 and line 209 of the Results section must be re-written clearly in standard language and this portion (Initial soil fertility before planting, and Chemical analysis of the extracts used for the experiment) should be shifted into Materials and Methods. Response of the crop to the treatments should be systematically, specifically and clearly stated. Some section headings are not appropriate. Thorough revision of this section is necessary. The entire text and table with headings between line 191 and line 209 must be re-written clearly in standard language and this portion (Initial soil fertility before planting, and Chemical analysis of the extracts used for the experiment) should be shifted into Materials and Methods. Line 211 – line 238: “Treatment effects on growth and yield parameters of plantain” should be written in one paragraph in place of two separate headings and multiple paragraphs. Line 241: The heading should be changed to “Treatment effects on soil properties after harvest of plantain” The text could be written in one paragraph. Line 211: The heading is not appropriate. Line 220: NPK 15-15 again (!) Line 224: The heading is not appropriate.	5. <u>Results</u> - Lines 191 and 209 of the results had been corrected. - Line 211 – line 238: The corrections had been effected. - Line 220: It is NPK 15-15-15. Sorry for the typographical errors.
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	Line 233: How can the same mistake be made repeated number of times? NPK 15-15 again (!). Line 243: “total N, available P, exchangeable K, Ca, and Mg and O.M” should replace “N, P, K, Ca, Mg and O.M” 6. In the Discussion section, the author could not explain his results well and interpret the underlying causes of the treatment effects. The author gave examples of a limited number of his own works. An exhaustive discussion of the effects of neem leaf extract and wood ash extract and their mixtures on soil properties could be presented. Some hints are given in the attachment. For assistance to the author I prepared a bibliography in the attachment. The author should systematically discuss principal findings. Some questions should be raised and answers should be sought. For example, Why did NPK fertilizers increase growth and yield of plantain? Why did water extract of neem leaf increase growth and yield of plantain? Why did water extract of neem leaf modified soil properties, and had these modifications affected plantain growth? Why did mixture of neem leaf extract and wood ash extract give added benefits? These questions could be explained with the information of past works in literature. 7. The author should follow a definite style (if there is any specific style of the Journal) of listing references. The author	Line 243: This had been effected. 6. <u>Discussion</u> The discussion had been properly written according to these headings: - Why NPK fertilizers increased growth and yield of plantain - Why water extract of neem leaf increase growth and yield of plantain. - Why did neem leaf extract contributed to the growth and yield of plantain - Why did the mixture have comparative advantage in giving added benefit? 7. <u>References</u> This had been properly written according to
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	presented an irregular style. Somewhere year of publication was within brackets, elsewhere without brackets; the year was followed by a colon (:) at places, and stop (.) otherwise. Somewhere there is comma (,) between author name and year of publication; somewhere there is none. The year is bold at some instance; but normal in other times. Author's initials are also irregular. 8. A clear conclusion should be enough. There is no need of recommendation. Bibliography (for assistance to the author) <u>Zhang X, Shen Q, Tan J, Mao Z.</u> (2002) Effects of neem seed extracts on nitrogen use efficiency in two different soils (in Chinese). <u>Ying Yong Sheng Tai Xue Bao</u>. 2002 Nov;13(11):1417-20. N. O. Agbenin, A. M. Emechebe, P. S. Marley and A. D. Akpa (2005). Evaluation of Nematicidal Action of Some Botanicals on <i>Meloidogyne incognita</i> In Vivo and In Vitro. <i>Journal of Agriculture and Rural Development in the Tropics and Subtropics</i> 106(1) 29–39 M.B. Hossain, H.-M. Poehling*, G. Thöming & C. Borgemeister (2008) Effects of soil application of neem (NeemAzal®-U) on different life stages of <i>Liriomyza sativae</i> (Diptera: Agromyzidae) on tomato in the humid tropics. <i>Journal of Plant Diseases and Protection</i>, 115 (2), 80–87 Subbalakshmi Lokanadhan, P. Muthukrishnan and S.Jeyaraman	the guidelines of the journal. 8. The title of the tables had been properly written and re-numbered as mentioned in the revised manuscript.
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	(2012) Neem products and their agricultural applications. JBiopest, 5 (Supplementary): 72-76 (2012) 72 Sheo Mohan Prasad, Rajiv Dwivedi, Ranjana Singh Mudit Pratap Vir Vikram Bahadur Singh and Dharmendra Singh (2007). Neem Leaf Aqueous Extract Induced Growth, Pigments and Photosynthesis Responses of Cyanobacterium <i>Nostoc muscorum</i>. Philippine Journal of Science 136 (1): 75-81 Alberta Environment (2002). Standards and Guidelines for the Use of Wood Ash as a Liming Material for Agricultural Soils. Pub. No: T/666. ISBN: 0-7785-2280-6 (Printed Edition); ISBN: 0-7785-2281-4 (On-line Edition); Web Site: http://www.gov.ab.ca/env/ Emmanuel Ibukunoluwa Moyin-Jesu (2012) Comparative evaluation of modified neem leaf, neem leaf and wood ash extracts on soil fertility improvement, growth and yields of maize (<i>Zea mays</i> L.) and watermelon (<i>Citrullus lanatus</i>) (Sole and Intercrop). Scientific Research Publishing, DOI identifier: 10.4236/as.2012.31012 Santhi S.R., Palaniappan S.P and Puroshothaman D. (1986). Influence of neem leaf on nitrification in a lowland rice soil. Plant and Soil 93:133-135. MEYERS N. L. AND KOPECKY M.J. (1998) Industrial wood ash as a soil amendment for crop production. TAPPI JOURNAL 81(4):123-130. Hopkins, C. G. (1910) Soil Fertility and Permanent Agriculture, Ginn and Co., New York, 1910.	
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	Adams, S. A. (1968) in The Role of Potassium in Agriculture, American Society of Agronomy, Madison,WI. Etiegni, L., Mahler, R. L., Campbell, A. G. <i>et al.</i> (1991) Soil Sci. Plant Anal. 22:257. Huang, H., Campbell,A. G., Folk, R., <i>et al</i> (1992), Soil Sci. Plant Anal. 23(1 2):25 Lerner, B. R. and Utzinger, J. D. (1986) Hort.Sci. 21: 76	
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments	Since the policy of the Journal is “not to reject any article”, I recommend that the manuscript be revised thoroughly and reviewed again before finally considering it for publication. The language of the manuscript must be improved, errors corrected, re-written and resubmitted. The author may take the assistance of some senior expert of scientific writing, preferably in the field of soil fertility and proficient in English.	