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Journal Name:	British Microbiology Research Journal
Manuscript Number:	2013_BMRJ_5635
Title of the Manuscript:	CURRENT RHIZOBIUM TAXONOMY
Type of the Article	Review

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)
<u>Compulsory</u> REVISION comments	MS: 2013_BMRJ_5635 Title: Current Rhizobium Taxonomy This paper aims to revise the current status of the Rhizobium taxonomy which is an interesting field. However the paper is not actualized, it lacks many species and there are contains several errors that must be corrected before publication. The title is not correct: Rhizobium is only a genus and in the manuscript several other genera are included, then the title should be "Current taxonomy of rhizobia" In the abstract several genera able to form nodules in legumes are mentioned, two of them Sinorhizobium and Allorhizobium are not longer valid, the first have been reclassified into Ensifer, which is not mentioned in the paper and the second has been included in genus Rhizobium. It lacks the genus Shinella, whose species S. kummerowiae formed nodules in Kummerowia. It lacks the genera Microvirga and Aminobacter that have been recently described as legume endosymbionts. The	Thank you. OK! We tried to do our best to actualise and update this paper and also to correct errors. We totally agree with you because we included several genera. The title have been changed "Current taxonomy of rhizobia" OK Sir, required modifications have been done We tried to do our best to correct and complete this paper, wishing it will be suitable for publication



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	only species that is able to nodulate legumes within genus <i>Blastobacter</i>, <i>Blastobacter denitrificans</i>, has been reclassified into genus <i>Bradyrhizobium</i> and therefore the genus <i>Blastobacter</i> currently does not contain species able to nodulate legumes and should be removed from the abstract explaining in the manuscript the taxonomic history of the former species <i>B. denitrificans</i>. The genus <i>Ralstonia</i> does not contains species able to nodulate legumes, the single species having this ability was reclassified several years ago as <i>Cupriavidus taiwanensis</i>. Therefore <i>Cupriavidus</i> and not <i>Ralstonia</i> must be cited in the abstract and the history of this species also should be explained in the manuscript. Concerning to the gamma-Proteobacteria, only one strain of <i>Pseudomonas</i> non cited by the authors seems to be legume endosymbiont (), from those isolated in other works such as those from reference [11] as the authors stated in the manuscript the ability of legume nodulation was never confirmed. Then, these bacteria are nodular endophytes as occurs with the genus <i>Herbaspirillum</i> and not endosymbionts. Therefore, considering the aims of this review they can be removed from the manuscript. The phylogeny of rhizobia is currently based on the 16S rRNA gene (not 16S rDNA) as well as in other genes. Several housekeeping genes are currently used in rhizobia	
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	taxonomy that have been not mentioned in the text, as well as several auxilliary genes (symbiotic, virulence, etc.) are used to define biovars (or symbiovars as was recently proposed). If the authors decide to maintain this subheading, these genes should be mentioned. The other mentioned techniques are not phylogenetic ones and can be transferred to the polyphasic taxonomy subheading. In this sense, a recently published technique to identify fast growing rhizobia has not been mentioned in the manuscript. MALDI-TOF MS has been proven to be an useful techique for identification of members of Rhizobiaceae family. The figures should be originals and only the first one could be interesting. If the authors wish to maintain the figure 1, they must performed this phylogenetic tree based on the 16S rRNA gene with the type strains of the species nodulating legumes from the different genera cited in the text. All of them are available in genbank and the Mega 5 package is free to build the phylogenetic tree. In the table 1 There are much more species into genus Rhizobium than those mentioned in the manuscript. To actualize them the authors should search in pubmed database using the following keywords: "Rhizobium sp. nov."	
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	and carefully revised the new names. For example, <i>Rhizobium tropici</i> IIA has reclassified into species <i>Rhizobium leucaenae</i>. <i>Rhizobium phaseoli</i> is a valid species not included in the table 1. The species <i>R. etli</i> has two biovars: <i>phaseoli</i> (nodulating <i>Phaseolus</i>) and <i>mimosae</i> (nodulating <i>Mimosa</i>). It lacks several species inducing tumours or hairy roots, such as <i>R. rhizogenes</i>, <i>R. radiobacter</i>, <i>R. rubi</i>, etc. It lacks the host (or the isolation source) of some species that can be find in the original description. For example in <i>R. multihospitium</i>, <i>R. halophytocola</i>, etc. The genus <i>Sinorhizobium</i> is currently <i>Ensifer</i> and it lacks the type species of this genus, <i>Ensifer adhaerens</i>, that was not isolated from legume nodules. Curiously at the end of the species list, the names <i>Ensifer mexicanus</i> and <i>E. numidicus</i> were correct. The species <i>E.xinjiangensis</i> is not longer valid since is a later synonym of <i>E. fredii</i>. The authors should explain this in the text. The genus <i>Allorhizobium</i> is not longer valid, the current species is <i>Rhizobium undicola</i>. The genus <i>Mesorhizobium</i> also contains more species than those included in the table. The name <i>M. septentrionale</i> is misspelled. Please delete <i>Acacia</i>, <i>Chamaecrista</i> and <i>Leucaena</i> from the hosts of <i>M. mediterraneum</i>.	<i>Acacia</i>, <i>Chamaecrista</i> and <i>Leucaena</i> are host plants of <i>M. plurifarum</i> not <i>M. mediterraneum</i>.
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	The only species able to form legume nodules from genus Phyllobacterium is P. trifolii, then the species P. leguminum and P. ifriqiyense and the corresponding reference should be removed from this table. It lacks several species from genus Bradyrhizobium and the genus Blastobacter must be removed from the table including the species Bradyrhizobium denitrificans in the genus Bradyrhizobium. Delete the genus Herbaspirillum from table 1 In the Gamma Proteobacteria delete the species currently included in Table 1 and the Order Enterobacteriales and add Pseudomonas sp. (Order Pseudomonadales, Family Pseudomonadaceae). Reference: Shiraishi A, Matsushita N, Hougetsu T. Nodulation in black locust by the Gammaproteobacteria Pseudomonas sp. and the Betaproteobacteria Burkholderia sp. Syst Appl Microbiol. 2010 Aug;33(5):269-74. The genus Burkholderia contains more nodulating species than those cited by the authors and Burkholderia sp. must be placed after the named species and not before. All species must be a reference, for example B. caribensis, B. tuberum, B. phymatum and Burkholderia sp. The authors stated in several places the number of genera and species able to	
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	nodulate legumes, they must be corrected considering the changes in the table 1. It is not correct to include the genus Mesorhizobium within the branch Rhizobium/Agrobacterium since it is a genus belonging to a different Family (Phyllobacteraceae). It seems that this phylogenetic classification has been taken for a too old revision. The paper should be arranged according to the current phylogenetic classification of rhizobia. In all text there are many incongruences. For example, R. larrymoorei is included in genus Rhizobium, but not the species radiobacter, rubi and vitis that are named Agrobacterium in the subheading 4.1.1. in lines 165-167. What is Agrobacterium biovar 1?. Since the authors explain that all these species are currently included in the genus Rhizobium they also must explain the history of R. larrymoorei that was reclassified into genus Rhizobium but also initially was Agrobacterium larrymoorei. In all cases the history of each genus should be actualized, for example the species Bradyrhizobium yuanmingense was isolated several years ago and not recently. And after its definition most of species of genus Bradyrhizobium have been described that are not mentioned in the paper nor included in table 1.	
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	To see the valid names of species you can see : http://www.bacterio.net/	
<u>Minor</u> REVISION comments	In all text when more than one genus are mentioned the correct word is genera Abstract: Burkholderia and Ralstonia are not in italics In the abstract references must not be included In the heading 4, line 107: it lacks two commas, before and after “analysis of plasmids”	You’re right, thank you Of course yes, it have been corrected OK!
<u>Optional/General</u> comments		