Reviewer’s report

Title: Acinetobacter calcoaceticus from a fatal case of pneumonia harbouring blaNDM-1 on a widely distributed plasmid

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Reviewer: Yvonne Pfeifer

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BMC Microbiology Manuscript

Title “Acinetobacter calcoaceticus from a fatal case of pneumonia harbouring blaNDM-1 on a widely distributed plasmid”

The study characterizes a NDM-1 producing A. calcoaceticus strain from a clinical sample taken in a Chinese hospital in 2010. Methods were Apal-baculorestriction and PFGE analysis, whole genome sequencing and conjugation experiments. A lot of information on this strain (genome sequence) is already published (see Reference 28). Thus the manuscript contains unnecessary repetitions, is way too long and has the wrong focus because the news values of this story are the conjugation experiments and epidemiological data. Major comments and comments for every part of the manuscript are mentioned below.

1. Which resistances were transferred? The antimicrobial susceptibilities of the transconjugants are completely missing; please include the data in table 1.
2. Which plasmid was transferred by conjugation? The NDM-1 carrying plasmid or both?
3. Isolate 10051442 seems to be closely related to the study isolate regarding their macrorestriction patterns. Please check the species (e.g. 16SrRNA sequencing, intrinsic blaOXA sequencing etc.) and give epidemiological information (blanDM-1 presence? patient at the same time in the hospital? other patient data etc.).
4. Give information on the other strains in the hospital – they seems not very closely related to the study strain – are all A. calcoaceticus?
5. Figure 1: include the date of isolation (month/year), species, and presence of blaNDM-1 for all isolates in the figure – furthermore, label the study strain (e.g. in bold).
6. Figure 3 is not necessary – furthermore the similarity values are missing in this figure – instead giving the figure, the most important facts can be given in brief in the manuscript text.
7. Background – too long, please give only the most important facts and sentence with the aims of the study in the end (see further comments).
Abstract:
Line 12-13: The last part of this sentence belongs to the conclusion of the abstract.
Line 17: what is “unlinked”?
Line 19: which IS?
Line 11-23: in this part the results of strain specific features (PHEA-2 similarity) are missing as well as the transferred resistances (results of conjugation)

Background:
Line 43-44. Delete the part “representing…Enterobacteriaceae”.
Line 44-48: Redundant – delete these sentences.
Line 54: what means “high isolation”? Give the prevalence and the species names.
Line 57-59: Delete the part “resistance…abroad.”.
Line 62-63: Delete the part “The blaNDM-1…ISAb125”.
Line 70-73: delete this sentence – redundant.
Line 81-90: Include this complete case report in the Methods section.

Methods:
Line 96: “Case report and bacterial isolates” – include the case report here
Line 98-99: Give the period of time and the number of patients and isolates.
Line 113-117: Give the antibiotic substances that were tested by disk test and automated test.
Line 156: combine the paragraphs.

Results/Discussion:
Line 170-177: repetition – please make it short – case report data and data on identification are not necessary.
Line 182-183: Give more information on that fact. Discuss it.
Line 186-187: not necessary to name all beta lactams, write “beta-latams including carbapenems” and instead give data other antibiotics (e.g. susceptibility to colistin etc).
Line 188-191: Redundant. Delete it. Give information on resistances of the other isolates.
Line 193-196: This is complete repetition of methods – delete it and give the results: which plasmids were transferred, which resistances were transferred?
Line 202: give the information if PHEA-2 is a NDM-producer or not.
Line 227-234: Unclear what is meant here – rephrase this part
Line 241: What means “almost identical”? Give percentages or say “similar”.


Conclusion:
A conclusion should be no more than a half page in length giving the most important findings, news value and outlook. Reduce and revise this part - extract relevant information from this part and shift it to the part discussion.

Minor comments:
blaNDM-1: write “bla” in italics and “NDM-1” in lowercase letters
ISAba125: write “IS” in italics.
Line 4: write “bacterial strain” instead of “isolate”.
Line 8: Delete “to characterize the isolate”.
Line 12: “Acinetobacter calcoaceticus”
Line 14: Modify: “Plasmid pXM1 carried the carbapenemase gene blaNDM-1…”.
Line 17: Modify “…or livestock widely distributed in China and worldwide.”
Line 21: Modify “…gene promoter but the blaNDM-1 gene was not present.”.
Line 28/29: Modify: “…need for surveillance including molecular methods and plasmid analyses.”.
Line 38: “Klebsiella pneumoniae”
Line 39: “detected worldwide”
Line 41: delete “in many countries”.
Line 41: Modify: “Globalisation and international travel…”.
Line 51: Modify: “…in different species throughout China.”
Line 55: delete “direct”.
Line 66 Modify: “The blaNDM-1 gene was found to be located on different plasmids which…”.
Line 107: Modify: “Genetic relatedness of the isolates was analysed by Apal-macrorestriction genomic DNA and pulsed-field…”
Line 117: “identified by PCR and sequencing…”
Line 120: write “E.coli” in italics.
Line 129: Delete “based sequencing”.
Line 137: delete“(a…plasmid)”.
Line 157: Modify: “…compared with sequences of the NCBI database (BLAST search)…”.
Line 192: “had 95…”.
Line 206: Modify: “the intrinsic blaOXA-75 gene of strain Phea-2…”.
Line 219: “…revealed a difference of only…”
Line 226: Modify: “…in plasmid pXM1 was flanked by 2…as previously described [34]”.
Line 248: modify “…as well as in livestock and in the environment.”
Line 258: replace “lost” by “not present”.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

'I declare that I have no competing interests'