Avoiding ‘salami slicing’ in publications describing new prokaryotic taxa

Martha E. Trujillo1,* and Aharon Oren2,3

 Until 1995, the number of new species of prokaryotes described each year was below 200. Then, after a period of ‘exponential’ growth, the number of validly published new species names stabilized at about 650 annually by 2007 [1]. In recent years the numbers increased again: while in 2013 655 new species were added to the list, 1080 new species (including new name combinations) can be found in the Notification Lists and the Validation Lists in the IJSEM for 2017. The number of papers submitted to the IJSEM increased from ~750 in 2013 to nearly 1100 in 2016 and 2017.

Examination of the manuscripts describing new species of prokaryotes submitted to the IJSEM, as well as papers in other journals in which names of new taxa were effectively published and then submitted for validation in the IJSEM, shows that many, if not most, are based on the ‘least publishable unit’ principle. ‘Salami publication’, also referred to as ‘salami slicing’ [2], is widely practised in the field, as data gathered by one research project are reported in a number of short, very similar papers, each describing a single new species.

We increasingly see a trend in which authors publish long series of articles that contain very similar descriptions of very similar organisms, descriptions that differ only in details of the organisms’ properties and the names assigned to them. Generally, these are ‘one colony – one species – one article’ descriptions, based on single isolates, which is also never advisable. For example, in the period 2015–2017 one research group published nine papers in three different journals, describing nine new species of a genus that in 2014 contained just eight species. This practice unnecessarily burdens the peer-review and publication system. All these papers must be dealt with by overworked editors, they often will end up on the desks of the same reviewers, and after acceptance they must be published by journals that are restricted in the number of pages that can be printed each year. Multiple single-species description papers occupy many more journal pages than a single synthetic paper that combines the formal descriptions of the same taxa.

The reasons why many authors submit papers based on the smallest-publishable-unit principle is obvious. Especially for students and young scientists, a long list of publications can be important for future job applications and promotions. For senior scientists a long publications list can be useful in grant applications. But it is not always realized that one really good paper can make much more impression than a larger number of ‘salami slices’ that differ only in details. Inflating the number of publications by splitting the results into the smallest publishable units may in the end be counter-productive.

Publishing papers describing new taxa can also be done differently. When authors have isolated a number of new species belonging to the same genus, publication of one longer paper describing them all is undoubtedly preferable over a series of separate articles in different journals. Such papers also tend to be highly cited. An excellent example is the description of nine new Deinococcus species from a single soil sample in 2005 [3], a paper now cited 174 times (ISI Web of Sciences, accessed January 11, 2018). It is also possible to publish descriptions of new taxa retrieved from one environment together, even if these taxa belong to different genera in the same phylum [4] or even in different phyla [5].

We therefore call upon all authors of taxonomic papers describing new species of prokaryotes to consider combining descriptions of multiple species of the same genus or of related genera in one paper. This will help in establishing a sustainable publishing system in which editors, reviewers, and publishers will be able to cope with the increasing numbers of new species described in recent years.

Funding information
The authors received no specific grant from any funding agency.

Conflicts of interest
The authors declare that there are no conflicts of interest.

References


---

**Five reasons to publish your next article with a Microbiology Society journal**

1. The Microbiology Society is a not-for-profit organization.
2. We offer fast and rigorous peer review – average time to first decision is 4–6 weeks.
3. Our journals have a global readership with subscriptions held in research institutions around the world.
4. 80% of our authors rate our submission process as ‘excellent’ or ‘very good’.
5. Your article will be published on an interactive journal platform with advanced metrics.

Find out more and submit your article at microbiologyresearch.org.