A note on the genus name *Rhodococcus* Zopf 1891 and its homonyms

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The genus name *Rhodococcus* Zopf 1891 was created to accommodate two species of red pigment (lipochrome)-producing bacteria. However, the genus name *Rhodococcus* Hansgirg 1884 had already been applied to an algal taxon. The wording of the 1975 and subsequent revisions of the Code dealing with bacteria/prokaryotes is such that the name *Rhodococcus* Zopf 1891 is illegitimate, despite the fact that it was included on the Approved Lists of Bacterial Names. Further research using databases of scientific names of organisms indicate the status of the name *Rhodococcus* Zopf 1891 needs to be carefully considered.

‘Independent’ means that the same name may be validly used for a taxon of bacteria as well as a taxon of plants or animals with the exceptions noted above'.

and

Rule 51b

‘Among the reasons for which a name may be illegitimate are the following:

4. If it is a junior homonym of a name of a taxon of bacteria, fungi, algae, protozoa, or viruses.

Example: *Phytononas* Donovan 1909, a genus of flagellates, antedates *Phytononas* Bergey et al., 1923, a genus of bacteria (Opinion 14)

This wording was retained in the 1990 revision (Lapage et al., 1992) and clearly indicates that *Rhodococcus* Zopf 1891 is a junior homonym (which the current wording considers to be a later homonym) of the algal genus name *Rhodococcus* Hansgirg 1884 and is therefore illegitimate. See also Rule 11.

While Principle 2 and Rule 51b deals with the issue of duplication of names (or combinations) at the same rank across the different codes of nomenclature, although recently updated (Labeda, 2000), the original wording of the Code and the recent changes do not affect the fact that the genus name *Rhodococcus* Zopf 1891 is a later homonym of the genus name *Rhodococcus* Hansgirg 1884, which is regarded as a member of the family *Chlorophyceae*, an algal taxon listed in the Index Nominum Genericorum (http://botany.si.edu/ing/). Under the current rules of the Code governing prokaryotes, the name *Rhodococcus* Zopf 1891 is illegitimate, is not to be used (Rule 51) and does not qualify as a correct name (Principle 6, 8 and Rule 23). This is one example of a name included on the Approved Lists that is illegitimate. It would also appear that the genus name, *Rhodococcus* Hirose

**Abbreviations:** ICN, International Code of Nomenclature of algae, fungi and plants; ICZN, International Code of Zoological Nomenclature; ION, Index to Organism Names.
1959, a member of the family Cyanidiaceae that is currently considered to be a synonym of the genus name Cyanidium Geitler 1933 (Index Nominum Genericorum) and Rhodococcus Borchsenius 1953, a member of the superfamily Coccoidea, within the insects [Index to Organism Names (ION); http://www.organismnames.com/] have also been used for botanical and zoological taxa respectively. A search in AlgaeBase (http://www.algaebase.org/) also provided the information that Rhodococcus Hansgirg 1884 is regarded as a synonym of the cyanobacterial/cyanophyte genus Chroococcus Nägeli 1849. It should be noted that Principle 2 and Rule 51b (4) make no reference to the status of names under the International Code of Nomenclature of algae, fungi and plants (ICN) (McNeill et al., 2012) or the International Code of Zoological Nomenclature (ICZN) (International Commission on Zoological Nomenclature, 1999), i.e. requiring that only legitimate/acceptable or validly published/available names be taken into consideration with regards establishing whether names are homonyms.

The ICN currently does not operate a system of valid publication identical with that in use under the Code dealing with prokaryotes, and shifts in classification associated with the name Rhodococcus Hansgirg 1884 as either a member of the family Chlorophyceae or as a member of the cyanophytes as a later synonym of the genus Chroococcus Nägeli 1849 has no effect on the status of the name Rhodococcus Hansgirg 1884. However, given the fact that there is a need to sort out the status of names in use under the ICNap and ICZN there are already initiatives to introduce infrastructure similar to that found helpful in drawing up the Approved Lists of Bacterial Names and formulating the wording of the 1975 revision of the Bacteriological Code (Lapage et al., 1975), e.g. ZooBank (http://zoobank.org/) and MycoBank (http://www.mycobank.org/). One of the key aspects will probably have to be the drawing up of lists of names that will continue to be used in the future and abandoning those that serve no further useful purpose as was the case with the Approved Lists of Bacterial Names (Skerman et al., 1980, 1989). If such lists were to materialize then there would be a need to deal with the classification of Rhodococcus Hansgirg 1884 as either a member of the family Chlorophyceae or as a member of the cyanophytes/cyanobacteria, where the question of whether it is a later heterotypic synonym of the genus name Chroococcus Nägeli 1849 will have to be addressed. If an Approved List of Cyanophyte/Cyanobacterial Names were to be drawn up in which the genus name Rhodococcus Hansgirg 1884 were to be taken into consideration and the same principle adopted as under the Approved Lists of Bacterial Names, then priority is initially determined by the date of publication of those lists. Where priority is not resolved by that means, then dates associated with the effective publication are taken into consideration. Under such a set of Rules, names placed on the Approved Lists of Bacterial Names would have priority over names placed on an Approved List of Cyanophyte/Cyanobacterial Names and would have the effect of reversing the order of priority of Rhodococcus Hansgirg 1884 versus Rhodococcus Zopf 1891.

Given the information currently available on the classification of the genus Rhodococcus Hansgirg 1884, there is evidently a need for further work. Although the name Rhodococcus Zopf 1891 is, at the time of writing, a later homonym of the genus name Rhodococcus Hansgirg 1884, it remains to be determined what the fate of the genus name Rhodococcus Hansgirg 1884 will be.

Declaration of a potential conflict of interest

The author is employed by an organization that commercially offers both taxonomic services as well as biological material to the scientific community. This may be perceived as a potential conflict of interest.

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REFERENCES


