

Minutes of the closed plenary meeting of the International Committee on Systematics of Prokaryotes, 13 June 2024, via Zoom

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Abstract

A closed virtual plenary meeting of the International Committee on Systematics of Prokaryotes (ICSP) was held online on 13 June 2024. The meeting was open to full, co-opted and life members of the ICSP and to members of the Judicial Commission. To comply with Articles 4(d) and 5(d)(1) of the Statutes of the ICSP, the minutes of this meeting are published here.

MINUTE 1. GREETING, CALL TO ORDER

International Committee on Systematics of Prokaryotes (ICSP) Chair E.R.B. Moore called the meeting to order at 17.00 CET. He thanked all participants for joining the second plenary meeting of the current term of the ICSP. He explained that, due to the nature of the agenda especially the topics of the proposed emendations in the 'Best of Both Worlds' publication [1] for the current provisional status of *Candidatus* for naming putative taxa, which represent issues that are seen to be existential for the International Code of Nomenclature of Prokaryotes (ICNP) and the continued relevance of the ICSP, this meeting was scheduled as a closed meeting among ICSP and Judicial Commission (JC) members, to better facilitate discussion.

The meeting was attended by E.R.B. Moore (Chair, Executive Board (EB)-ICSP), C.M. Manaia (Vice-Chair, EB-ICSP), A. Oren (EB-Executive Secretary, ICSP), M. Sakamoto (EB-Member at Large), D.R. Arahal (Chair, JC), H. Christensen (Vice-Chair, JC), M. Göker (Secretary, JC), M. Birbir, S.N. Dedysh, R.R. de la Haba, S. Emler, M. Figge, D. Hatzinikolaou, K. Jangid, M. Kostovski, J.-S. Lee, L. Maldonado, A. Nemeč, M. Šeruga Musić, A. Sidarenka, I.C. Sutcliffe, P. Švec, I. Tsitko, S.N. Venter, S. Ventura, and J.P.W. Young. M.-S. Li, nominated to become a co-opted member, was an invited guest; apologies were received from B. Duim, P. Hugenholtz, M.J. Pallen, and A. Thamchaipenet.

MINUTE 2. PRESENTATION: 'FUNCTIONS OF THE ICSP AND RESPONSIBILITIES OF ICSP REPRESENTATIVES'

M. Göker presented an overview of the functions of the ICSP and the responsibilities of the ICSP representatives, especially for orientation of new ICSP members, both regular and co-opted. In a 10 min presentation with slides, he explained the function of the ICSP as a subsidiary of Bacteriology and Applied Microbiology of the International Union of Microbiological Societies (IUMS), the functioning of the EB, the JC, and the Subcommittees on Taxonomy in accordance with the statutes of the ICSP, as well as the recently established *Ad Hoc* Committee on Mitigating Changes in Prokaryotic Nomenclature. He also explained a number of key concepts of the ICNP that are sometimes misunderstood, such as the concepts of correct names and nomenclatural types. Further information can be found in the Frequently Asked Questions section on the ICSP website (www.the-icsp.org). He also referred to the recently published instructions and guidelines for the preparation of a Request for an Opinion to the JC [2].

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Abbreviations: BISMiS, Bergey's International Society for Microbial Systematics; EB, Executive Board; ICN, International Code of Nomenclature for algae, fungi, and plants; ICNP, International Code of Nomenclature of Prokaryotes; ICSP, International Committee on Systematics of Prokaryotes; IJSEM, International Journal of Systematic and Evolutionary Microbiology; IUMS, International Union of Microbiological Societies; JC, Judicial Commission; SeqCode, Nomenclatural Code for Prokaryotes Described from Sequence Data.

S.N. Venter commented on an apparent lack of separation between the ‘legislative’ (i.e., ICSP voting members) and the ‘judicial’ bodies (i.e., JC members) of the ICSP and asked whether ICSP members can also be members of the JC. E.R.B. Moore replied that indeed ICSP members can serve on the JC, but members of the JC cannot be officers of the EB. A. Oren has noted that, currently, two full members (A. Ventosa, S. Ventura) and two co-opted members of the ICSP (H. Christensen, M. del C. Montero-Calasanz) serve on the JC. M. Göker pointed out that the proposed revision of the statutes of the ICSP [3] contains measures to ensure real separation of executive and judiciary powers in the future.

MINUTE 3. UPDATE ON VOTING ISSUES – ONGOING AND FUTURE BALLOTS

A. Oren presented information on a number of ballots in which the voting members of the ICSP (full and co-opted members) soon will be requested to vote:

- Proposals to revise the Statutes of the ICSP. The proposals were published on 5 March 2024 [3]. The actual proposed individual emendations are found in a 37-page supplementary table that presents the current version, the proposed new version(s), and explanatory notes. A 6-month public discussion on the proposals is currently open on the Slack channel. The ballot is scheduled to be opened on 5 September.
- A proposal to emend Appendix 9 of the ICNP on the formation of names of prokaryotes, recommending the use of connecting vowels after stems ending in the same vowel. The proposal was published on 6 December 2023 [4]. The current version found in Appendix 9 is as follows: ‘The connecting vowel is dropped when the following word element starts with a vowel’. A 6-month public discussion on the Slack channel ended on 6 June. The author has 2 months available to him to respond to comments, which he did not exercise. Therefore, on 8 June, the members were requested to vote to retain the original version or to adopt one of two alternative versions, ‘The connecting vowel is dropped when the preceding word element ends in the same vowel or when the following word element starts with a vowel’ or ‘The connecting vowel is dropped when the following word element starts with a vowel. The connecting vowel may be dropped when the preceding word element ends in the same vowel’.
- A proposal for further integration of *Candidatus* names in the ICNP. See further Minute 4. The proposal was published on 5 January 2024 [1]. It includes addition of a new Section 10 to the ICNP and new Rules 66–73. A public discussion on the proposals is currently open on the Slack channel and will end on 5 July. A 2-month period for allowing responses by the author(s) will start on 6 July, after which the ballot is scheduled to be opened.
- A proposal to emend Appendix 9 of the ICNP, further recommending how the prokaryote names are formed from personal names. The proposals were published on 16 January 2024 [5]. A public discussion on the proposals is currently open on the Slack channel and will end on 15 July. A 2-month period for the author to respond to comments will start on 16 July, after which the ballot is scheduled to be opened.

MINUTE 4. PRESENTATION: ‘THE BEST OF BOTH WORLDS; A PROPOSAL FOR FURTHER INTEGRATION OF *CANDIDATUS* NAMES INTO THE ICNP; OVERVIEW OF THE PROPOSED EMENDATION OF THE ICNP’

M. Göker presented his views about the Nomenclatural Code for Prokaryotes Described from Sequence Data (SeqCode) [6], the ways the SeqCode contravenes the ICNP and the attempt of the SeqCode to redefine the scope of the ICNP, something unprecedented in nomenclature. He reiterated that the ICNP applies to all prokaryotes, while the SeqCode claims that the ICNP applies only to prokaryotes with a name based on a strain or illustration or description. The SeqCode contains other factually inaccurate statements about prokaryotic nomenclature as regulated by the ICNP.

In M. Göker’s opinion, the SeqCode undermines the scientific standards of the ICNP by lowering the requirements for valid publication of names. However, the resulting names are indistinguishable regarding their formation, and they also are called ‘validly published’. Thus, names published under the SeqCode are not easily distinguishable from names validly published under the ICNP.

Another main problem is that the SeqCode removes the incentive to cultivate interesting strains and making them available to the scientific community by deposition in culture collections. Replicability is no longer possible, as the biological material is not made available. A culture is better than a preserved specimen, which is better than a genome sequence, which is better than a gene sequence. For instance, a genome sequence can be generated from a culture, but the opposite is not true.

M. Göker further pointed out that adherence to or adoption of the SeqCode would effectively invalidate the mandate of the *International Journal of Systematic and Evolutionary Microbiology* (IJSEM) and make the Validation Lists (Lists of Valid Publication of New Names and New Combinations Effectively Published Outside the IJSEM) pointless.

The goal of the proposals presented in the ‘Best of Both Worlds’ paper [1] is to regulate the assignment of names to uncultivated prokaryotes or other prokaryotes that cannot be validly published under the current Rules of the ICNP, while maintaining the scientific standards for valid publication. It also honours the earlier decision of the ICSP to reject the proposals published

by W.B. Whitman in 2016 to expand the definition of type material for naming prokaryotes [7]. The ‘Best of Both Worlds’ proposals are based on the fact that strains are more valuable than genome sequences and essential as the ultimate references for valid publication of taxonomic names, and it recognizes the hard work of colleagues who cultivate and deposit strains in culture collections to be made available to the scientific community. It also sanctions the existing *Candidatus* names and proposes regulations on how to work with such names.

The introduction of concepts such as ‘pro-validly published’, ‘pro-legitimate’, and ‘pro-correct’ for names of yet-uncultivated prokaryotes regulates what happens in case of synonymy of *Candidatus* names. These concepts mirror the concepts ‘validly published’, ‘legitimate’, and ‘correct’ names in the ICNP and are therefore easy to understand.

M. Göker outlined the consequences facing the ICSP with the vote on emending the ICNP according to the proposals in the ‘Best of Both Worlds’ publication.

One possible scenario is that the ICNP will reciprocate the SeqCode by recognizing names validly published under the other code. This will result in negative consequences, ignores the criticisms raised against the SeqCode and against the use of genome sequence data as type material of taxa with a validly published name, and devalues the work of depositors and culture collections. It also will make the quality control for names submitted in IJSEM manuscripts and the validation lists meaningless. If the ICNP accepted the SeqCode and validation of a name under the ICNP was not possible, the name could be registered under the SeqCode and would then be automatically recognized under the ICNP anyway.

A second option is that the ICSP accepts neither the SeqCode nor the ‘Best of Both Worlds’ proposals. This option would maintain the scientific standards for valid publication and would recognize the value of deposits and culture collections. However, we will need to deal with an increasing number of homonyms between the SeqCode and the ICNP.

The third option, and the best option in the opinion of M. Göker, is to accept the proposals given in the ‘Best of Both Worlds’ paper. The name to be applied to a taxon would be inferred from the criteria for being a correct name or a pro-correct name. Scientific quality for type material of taxa with a validly published name would be maintained; the same is true for the incentive to cultivate and deposit. The value of depositors and culture collections would be recognized, as well as the value of the IJSEM and the ICSP.

This presentation was then opened for discussion.

S.N. Dedysh: Will deposits of *Candidatus* taxa in culture collections be required? Will culture collections accept deposits of mixed cultures?

M. Göker: Deposition in culture collections of strains that in impure cultures, such as enrichments cultures or microbiomes, is not required based on the ‘Best of Both Worlds’ proposal. It is only an option in addition to, e.g., genome sequences. Strains can be deposited later when pure cultures or co-cultures have been obtained and the name can be validly published.

S.N. Dedysh: It is possible that we made a big mistake when we rejected the 2016 Whitman proposal [7]. We are now back to the same story.

M. Göker: The ‘Best of Both Worlds’ proposals are very different from Whitman’s proposals. If a *Candidatus* name is pro-validly published, the name must be retained if a culture will become available later, and the original authors of *Candidatus* names will be honoured as authors of the respective validly published names. At the same time, the standard for valid publication is not undermined, and we retain the incentive to cultivate and deposit.

K. Jangid: When Whitman made his 2016 proposal, the status and importance of *Candidatus* taxa was secondary, and unfortunately, little progress was made since. The first *Candidatus* list was only published in 2020 [8]. Publishing names pro-validly with *Candidatus* designation would still offer a secondary treatment to uncultivated prokaryotes.

S.N. Venter: The Bergey’s International Society for Microbial Systematics (BISMiS) Live session held on 18 May (www.youtube.com/watch?v=1ot1DR65Tbg) was planned as a debate on the ‘Best of Both Worlds’ proposal, but for technical reasons the debate could not take place. All are invited to join the upcoming BISMiS Live session on 22 June in which M. Göker, E.R.B. Moore and H. Christensen will present the ‘Best of Both Worlds’ publication with the proposals for emending the ICNP and their views on how the proposals will address some of the issues about publication of prokaryotic taxa that are not yet cultivated. A Q and A session and debate may be held after their presentations.

A. Oren: The registration link for the session will be sent to all members of the ICSP, JC and chairs of subcommittees on taxonomy.

S.N. Venter: Will the 65 000 *Candidatus* names published by Pallen *et al.* [9] be included in an upcoming *Candidatus* list?

M. Göker and A. Oren: *Candidatus* List no. 5 is currently in preparation, and we may refer to those 65000 names there. However, due to the size of the data set we will not list them. They may be listed in LPSN, depending on the resources of that database.

S.N. Venter: At the moment, I cannot validly publish the name of a species in the IJSEM [due to the special regulations of the South African government that restrict Access and Benefit Sharing]. Thus, the ICSP instructs the editors of the IJSEM to prohibit me from publishing names because I cannot submit cultures to culture collections. How can this problem be solved?

K. Jangid: Also Indian microbiologists are restricted in the possibility to deposit strains in repositories outside of India due to national legislation. Colleagues in many other countries are facing similar problems. Can non-validated names be proposed as pro-valid?

M. Göker: Indeed, they can, and publication of the names in the IJSEM is then possible. If the name is pro-validly published, others would have to reuse the name if and when they have isolated and deposited a strain of the same taxon and validly publish its name. Which manuscripts the IJSEM accept for publication is a matter of the IJSEM's policy. Neither the ICSP nor the ICNP force the IJSEM to not accept publications in which names are proposed that cannot be validly published.

E.R.B. Moore: Happily, some countries, including India, are moving to accept some loosening of the restrictions on Access and Benefit Sharing, but it may require time to achieve a solution. We need to work with the researchers and legislators of countries with these restrictive policies to find solutions, particularly focusing on differentiating Access and Benefit Sharing for research and taxonomic purposes vs. commercial purposes. Following the 'Best of Both Worlds' proposals, it is not necessary to lower the standards of what constitutes valid publication, or what constitutes type material.

I.C. Sutcliffe: Being both an editor of the ICNP and an author of the SeqCode, I find the 'Best of Both Worlds' proposals overly and unnecessarily complicated with many new regulations and new categories of names that will be difficult to manage. It does not really solve the status of *Candidatus* taxa as a sort of inferior tier. We have seen a precedent for reciprocal recognition by different codes when the names validly published under the International Code of Nomenclature for algae, fungi, and plants (ICN) and the ICNP were recognized by both codes. Why can the ICNP not reciprocate the recognition of the SeqCode as done for the cyanobacteria whose nomenclature is also regulated by the ICN? That was achieved simply by modifying General Consideration 5 and changing three Rules. The intention of the SeqCode was not to contravene the ICNP but to create a code that complements the ICNP. It is possible for the two codes to coexist.

H. Christensen: At first, I thought that the 'Best of Both Worlds' proposals were complicated. But, I came to realize that they are a better option than the SeqCode.

M. Göker: The newly proposed rules are not much more complicated than the existing ones. The 'Best of Both Worlds' proposal only introduces three new nomenclatural status indicators (pro-validly published, pro-legitimate, pro-correct), and these just mirror the existing nomenclatural status indicators (validly published, legitimate, correct). There are books for children that require their readers to deal with more complexity. As indicated in the presentation, the case of the cyanobacteria cannot be used as a precedent for acceptance of the SeqCode under the ICNP, as the ICN is similar to the ICNP and very different from the SeqCode. In particular, the ICN now requires physical material (specimens) as nomenclatural types of taxa with a validly published name. Moreover, the botanists have rejected the idea of accepting DNA sequences as nomenclatural types. The alleged intention of the authors of the SeqCode is irrelevant. In contrast, the fact that the SeqCode contravenes the ICNP by construction is relevant.

K. Jangid: By creating a pro-validly published nomenclatural type, we are actually creating a less rewarding status than that of *Candidatus*, which already was less rewarding than valid publication. When increasing the confusion, fewer colleagues will be interested in this branch of science.

M. Göker: The 'Best of Both Worlds' proposal does not change the *Candidatus* status at all. The Best of Both Worlds proposal is fully backwards compatible with the ICNP and previous ICSP decisions. The 'Best of Both Worlds' article provides an incentive to propose names based on genome sequences and an incentive to cultivate and deposit, even taxa that already have a *Candidatus* name.

After 30 minutes, the discussion was stopped. E.R.B. Moore reminded all participants that the discussions should be continued on the Slack platform.

MINUTE 5. UPDATE FROM THE JC

D.R. Arahal reported on the activities of the JC since the previous plenary meeting held on 14 December 2023.

- A new request for an opinion (Conservation of the illegitimate prokaryotic generic name *Proteus* Hauser 1885 (Approved Lists 1980)) has just been accepted for publication in the IJSEM [10].
- Judicial Opinions no. 129 and 130 have been published [11, 12].
- The Chair of the JC has attended a consultation with the Chair of the ICSP and the Editor-in-Chief of the IJSEM to grant an exception to Rule 30(3)(b) of the ICNP about the evidence of availability of type strains in at least two culture collections in different countries. The petition, which affects the names *Promethearchaeum syntrophicum* gen. nov., sp.

nov., *Prometharchaeaceae* fam. nov., *Prometharchaeales* ord. nov., *Prometharchaeia* class. nov., *Promethearchaeota* phyl. nov. and *Promethearchaeati* regn. nov., was granted unanimously.

I.C. Sutcliffe commented on the JC decision for a Request for an Opinion on the legitimacy of the genus name, *Rhodococcus* Zopf 1891. He complimented the JC on arriving at an elegant solution (Opinion 130), particularly in light of the legacy of M. Goodfellow.

MINUTE 6. UPDATE ON THE PREPARATIONS FOR THE ICSP SYMPOSIUM AT THE 18TH CONGRESS OF THE IUMS, FLORENCE, ITALY

E.R.B. Moore has confirmed the following draft programme of the ICSP Symposium for the IUMS 2024 Conference in Florence, Italy (23–25 October 2024) to the meeting organisers. The session was scheduled for 24 October, 13.15–14.50, and will be chaired by E.R.B. Moore and I.C. Sutcliffe. The programme is as follows:

- E.R.B. Moore: Opening and Welcome to the ICSP Symposium of the IUMS-2024 Congress.
- I.C. Sutcliffe: Introduction to the van Niel International Prize and award of the 2020 Prize to T. Woyke (DOE Joint Genome Institute, Berkeley, CA, USA).
- T. Woyke – van Niel Prize Lecture: Genomics at the intersection of microbial communities and single cells.
- A. Oren – invited lecture: A short history of the ICSP.
- M. Göker – invited lecture: Recent activities of the ICSP.
- E.R.B. Moore: Close the ICSP Symposium.

The ICSP plans to hold a plenary meeting in Florence, tentatively scheduled for 22 October, the day before the opening of IUMS 2024. However, it may be more cost-effective to hold the plenary meeting at a time during the conference, for example, in the evening of 23 or 24 October. S. Ventura generously offered to host the meeting in his institute, the CNR Research Institute on Terrestrial Ecosystems, Sesto Fiorentino, not far from the conference venue. E.R.B. Moore will finalize the details with S. Ventura.

MINUTE 7. OTHER BUSINESS

E.R.B. Moore mentioned that he had received several good and useful comments after the last ICSP Plenary meeting, especially those about how to improve the impact of the IJSEM, and requested the participants to send him feedback and let him know whether the meeting and discussions were useful.

MINUTE 8. CLOSE THE MEETING

The Chair closed the meeting at 18.55 CET.

Minutes prepared by A. Oren, 15 June 2024. The author is the Executive Secretary of the EB of the ICSP.

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Conflicts of interest

The author declares that there are no conflicts of interest.

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