Proposal of the suffix –ota to denote phyla. Addendum to ‘Proposal to include the rank of phylum in the International Code of Nomenclature of Prokaryotes’

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Abstract

As an addendum to the earlier proposal to include the rank of phylum in the International Code of Nomenclature of Prokaryotes (Oren et al., Int J Syst Evol Microbiol 2015;65:4284–4287) we propose the suffix –ota to denote phyla, replacing the somewhat awkward –aota. We therefore present a new draft modified version of Rule 8 of the International Code of Nomenclature of Prokaryotes and a corrected list of names of phyla to be considered for validation after approval of the proposal to include the rank of phylum in the Code.

The International Code of Nomenclature of Prokaryotes (ICNP) [1] covers the nomenclature of prokaryotes up to the rank of class only. As we felt that inclusion of the rank of phylum under the rules of the ICNP is long overdue, we earlier proposed changes in Rules 5b, 8, 15 and 22 [2]. The proposed new version of Rule 8 reads ’The name of a phylum is in the neuter gender, the plural number and written with an initial capital letter. The name is formed by the addition of the suffix -aota to the stem of the name of one of the contained classes.’

Implementation of this Rule will lead to the formation of some awkward names that are difficult to pronounce, thus violating Recommendation 6.1 of the Code. Examples are Alphaproteobacteriaota, Gemmatimonadota (entries found in Table 1 in [2]), In addition, if the pending proposal to extend the Rules of the ICNP to include Candidatus taxa [3] is implemented, other awkward names such as Nanoarchaeota, Korarchaeota, and other similar Candidatus phyla of Archaea will be created.

We therefore recommend that the suffix to denote a phylum in Rule 8, ‘-aota’, should be changed to the simpler ‘-ota’. The use of this suffix to denote a phylum is comparable with the use of the endings –phycota and –mycota for divisions or phyla of algae and fungi based on Article 16.3 of the International Code of Nomenclature for algae, fungi, and plants [4]. The emended version of Rule 8 is therefore proposed as follows:

RULE 8:

‘The name of each taxon (covered by the Code) above the rank of order is a Latin or latinized word. The name of a class is in the neuter gender, the plural number and written with an initial capital letter. The name is formed by the addition of the suffix -ia to the stem of the name of the type genus of the type order of the class. The name of a subclass is in the feminine gender, the plural number and written with an initial capital letter. The name is formed by the addition of the suffix -idae to the stem of the name of the type genus of the type order of the subclass. The name of a phylum is in the neuter gender, the plural number and written with an initial capital letter. The name is formed by the addition of the suffix -ota to the stem of the name of one of the contained classes.’

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We request that this change be considered by the Judicial Commission and by the International Committee on Systematics of Prokaryotes alongside the earlier proposal to include the rank of phylum in the Code [2].

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

References
2. Oren A, da Costa MS, Garrity GM, Rainey FA, Rosselló-Móra R et al. Proposal to include the rank of phylum in the International Table 1. Corrected list of names of phyla to be considered for validation after approval of the proposal to include the rank of phylum in the ICNP. This list is based on Table 1 in [2]

<table>
<thead>
<tr>
<th>Proposed phylum name</th>
<th>Nomenclatural type (class)</th>
<th>Phylum name currently in common use</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acidobacteriota</td>
<td>Acidobacteria</td>
<td>Acidobacteria</td>
<td>Acidobacteria cannot be used as the name of the class as it is on the list of nomina rejicienda (Opinion 79). Instead we propose Acidobacteriae</td>
</tr>
<tr>
<td>Actinobacteriota</td>
<td>Actinobacteria</td>
<td>Actinobacteria</td>
<td>Note that no nomenclatural type has been designated for the class Actinobacteria</td>
</tr>
<tr>
<td>Alphaproteobacteriota</td>
<td>Alphaproteobacteria</td>
<td>Proteobacteria</td>
<td>As the name Proteobacteria is widely used for the phylum, the Judicial Commission may consider conserving this name (earlier used for a class) instead of Alphaproteobacteriota</td>
</tr>
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<td>Aquificota</td>
<td>Aquificae</td>
<td>Aquificae</td>
<td>We propose establishing the class Aquificae as the nomenclatural type</td>
</tr>
<tr>
<td>Armatimonadota</td>
<td>Armatimonadetes</td>
<td>Armatimonadetes</td>
<td>As the name Firmicutes is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Bacillota</td>
</tr>
<tr>
<td>Bacillota</td>
<td>Bacilli</td>
<td>Firmicutes</td>
<td>Chloroba cannot be used as the name of the class as it is on the list of nomina rejicienda (Opinion 79). Instead we propose Chlorobacteriae</td>
</tr>
<tr>
<td>Bacteroidota</td>
<td>Bacteroidia</td>
<td>Bacteroidetes</td>
<td>As the name Firmicutes is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Bacillota</td>
</tr>
<tr>
<td>Caldisericota</td>
<td>Caldisericia</td>
<td>Caldiserica</td>
<td>We propose establishing the class Armatimonadetes as the nomenclatural type</td>
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<tr>
<td>Chlamydiota</td>
<td>Chlamydiae</td>
<td>Chlamydiae</td>
<td>As the name Firmicutes is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Bacillota</td>
</tr>
<tr>
<td>Chlorobacteriota</td>
<td>Chlorobacteria</td>
<td>Chlorobacteria</td>
<td>We propose establishing the class Armatimonadetes as the nomenclatural type</td>
</tr>
<tr>
<td>Chloroflexibacteriota</td>
<td>Chloroflexi</td>
<td>Chloroflexi</td>
<td>We propose establishing the class Armatimonadetes as the nomenclatural type</td>
</tr>
<tr>
<td>Chrysiogenetota</td>
<td>Chrysiogenetes</td>
<td>Chrysiogenetetes</td>
<td>As the name Firmicutes is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Bacillota</td>
</tr>
<tr>
<td>Deferribacteriota</td>
<td>Deferribacteres</td>
<td>Deferribacteres</td>
<td>As the name Firmicutes is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Bacillota</td>
</tr>
<tr>
<td>Deinococcota</td>
<td>Deinococcus</td>
<td>Deinococcus-Thermus</td>
<td>We propose establishing the class Armatimonadetes as the nomenclatural type</td>
</tr>
<tr>
<td>Dictyoglochina</td>
<td>Dictyoglochina</td>
<td>Dictyoglochina</td>
<td>As the name Firmicutes is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Bacillota</td>
</tr>
<tr>
<td>Elusimicrobiota</td>
<td>Elusimicrobia</td>
<td>Elusimicrobiota</td>
<td>As the name Firmicutes is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Bacillota</td>
</tr>
<tr>
<td>Firmibacteriota</td>
<td>Firmibacteria</td>
<td>Firmibacteria</td>
<td>As the name Firmicutes is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Bacillota</td>
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<td>Fusibacteria</td>
<td>We propose establishing the class Armatimonadetes as the nomenclatural type</td>
</tr>
<tr>
<td>Gemmatacostate</td>
<td>Gemmatacostate</td>
<td>Gemmatacostate</td>
<td>As the name Firmicutes is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Bacillota</td>
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<tr>
<td>Ignavibacteriota</td>
<td>Ignavibacteria</td>
<td>Ignavibacteria</td>
<td>As the name Firmicutes is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Bacillota</td>
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<td>Lentisphaerota</td>
<td>Lentisphaerota</td>
<td>Lentisphaerota</td>
<td>As the name Firmicutes is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Bacillota</td>
</tr>
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<td>Methanobacteriota</td>
<td>Methanobacteria</td>
<td>Methanobacteria</td>
<td>As the name Euryarchaeota is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Methanobacteriota</td>
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<tr>
<td>Mollicuteota</td>
<td>Mollicutes</td>
<td>Tenericutes</td>
<td>As the name Thauanarchaeota is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Nitrosospinaea</td>
</tr>
<tr>
<td>Nitrososphaerota</td>
<td>Nitrososphaerita</td>
<td>Thauanarchaeota</td>
<td>As the name Thauanarchaeota is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Nitrosospinaea</td>
</tr>
<tr>
<td>Nitrospira</td>
<td>Nitrospira</td>
<td>Nitrospira</td>
<td>We propose establishing the class Nitrosospinaea as the nomenclatural type</td>
</tr>
<tr>
<td>Planctomycetota</td>
<td>Planctomycetes</td>
<td>Planctomycetes</td>
<td>We propose establishing the class Planctomycetes as the nomenclatural type</td>
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<tr>
<td>Spirohaeota</td>
<td>Spirohaeota</td>
<td>Spirohaeota</td>
<td>We propose establishing the class Spirohaeota as the nomenclatural type</td>
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<tr>
<td>Synergistota</td>
<td>Synergistes</td>
<td>Synergistes</td>
<td>As the name Crenarchaeota is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Thermoproteota</td>
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<tr>
<td>Thermodesulfobacteriota</td>
<td>Thermodesulfobacteria</td>
<td>Thermodesulfobacteria</td>
<td>As the name Crenarchaeota is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Thermoproteota</td>
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<tr>
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<td>Thermomicrobiota</td>
<td>Thermomicrobiota</td>
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<td>Crenarchaeota</td>
<td>Crenarchaeota</td>
<td>As the name Crenarchaeota is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Thermoproteota</td>
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<tr>
<td>Thermotogota</td>
<td>Thermotogae</td>
<td>Thermotogae</td>
<td>As the name Crenarchaeota is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Thermoproteota</td>
</tr>
<tr>
<td>Verrucomicrobiota</td>
<td>Verrucomicrobiota</td>
<td>Verrucomicrobiota</td>
<td>As the name Crenarchaeota is widely used for the phylum, the Judicial Commission may consider conserving this name instead of Thermoproteota</td>
</tr>
</tbody>
</table>


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