Taxonomy Changes in the genus *Lactobacillus*: finally published.

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LABIP stands for Lactic Acid Bacteria Industrial Platform. Lactic Acid Bacteria (or LAB) are a very big family of lactic acid producing bacteria. They occur widely in food fermentation, where there role is very various but can be summarized as "improving safety, taste and texture of many foods".
The biggest group of LAB is composed of species of the genus *Lactobacillus*. Until yesterday this genus contained no less than 261 species. Probably a number record in bacterial nomenclature.
Until today.
In the scientific journal "International Journal of Systematic and Evolutionary Microbiology (IJSEM)", the genus *Lactobacillus* was formally split into 25 genera.
Whole genome sequences of all type strains were used to compare and weigh the commonalities and differences between the species and allowed to draw nice dendrograms. The results you can see here. The different clusters obtained were shown to intertwine with species of other genera such as *Fructobacillus, Leuconostoc, Paralactobacillus, Pediococcus*, etc. The original genus *Lactobacillus*, constructed in 1901 around the species *Lactobacillus delbrueckii*, is now again restricted to only 35 species. The other species have been formally taken out of the genus and put into 23 new genera and *Paralactobacillus*.
The choice was made to describe a large number of genera, because

1. The sequence data suggested that split
2. This would allow a more detailed communication
3. This would create a stable nomenclatural framework that would avoid further nomenclatural interventions in the near future

Renaming of lactobacilli has happened in the past. Quite a number of species have been taken out of the genus and put in other or new genera, mainly based on molecular data. The good thing of this large scale renaming, however, is that only the genus name will change. Species names remain the same. Moreover, the authors have been kind enough to try and choose new genus names that also start with an "L" , meaning that in the abbreviated form there will be no change. *L. rhamnosus* is still *L. rhamnosus*. Even today. Unfortunately, not all new genera start with an "L". To see a complete overview it is possible of course to consult the original IJSEM paper (here), but also to visit the official website of the Taxonomic Subcommittee (here), where you will find a link to a tool that allows you to simply check the conversion 'old' to 'new' or vice versa here, or here and here.

The economic, scientific and regulatory consequences of this process have been inventoried by LABIP before. Results of a workshop on the issue has been published here.

Consumers and administrators will now need to get used to the new names appearing on the labels of foods and food supplements, and researchers and regulators too will need to be re-educated and start to use the new names.

It goes without saying that a full transition from old to new nomenclature will take time, probably years. Still it would be good, in the sake of communication clarity, if everyone concerned would start to use the new name as soon as possible. The new situation allows a much more comprehensive understanding of the importance of the lactobacilli. Some new genera, as an example, contain almost exclusively species isolated from insects and have been named accordingly. Others are only from environmental origin. Homo- and heterofermenters are nicely separated. As discussed above, the interest of being able to discriminate much better the taxa containing potential health beneficial bacteria from potential pathogens, will on the longer-term prove to be beneficial to all. A more detailed classification and nomenclature will avoid a further, uncontrolled, expansion of what once was a gigantic genus, to the benefit of all those that have an interest in identifying their strains or even describing new species. We therefore think that the taxonomic challenge announced today will turn out to be a blessing in the end.