International Committee on Systematics of Prokaryotes
Subcommittee on the taxonomy of *Mollicutes*. Minutes of the closed meeting, 3rd July 2016, Brisbane, Australia

Meghan May¹,* and Daniel R. Brown²

**MINUTE 1. CALL TO ORDER**
The closed meeting was called to order at 13:30 on 3 July 2016, at the Queensland University of Technology, Brisbane, Australia.

**MINUTE 2. RECORD OF ATTENDANCE**
Subcommittee members present were A. Bertaccini (Italy), A. Blanchard (France), D. Brown (Chairman; USA), C. Knox (Australia), M. May (Acting Secretary; USA), A. Ramírez (Spain). The ex-officio member present was G. Browning (Australia). O.B. Spiller (UK) was an invited guest.

**MINUTE 3. APOLOGIES FOR ABSENCE**
Apologies for absence were received from J. Frey (Switzerland), L. Manso-Silván (France) and the emeritus member J.D. Pollack (USA). The other absent members were G. Gasparich (USA), N. Harrison (USA), T. Knight, Jr (USA), L. McAuliffe (UK), L. Regassa (USA), R. Rosenbusch (USA) and the emeritus members S. Razin (Israel) and D. Taylor-Robinson (UK).

**MINUTE 4. RESIGNATIONS**
During the 2014–2016 biennium, formal resignations were received from Giuseppe Firrao (Italy), Ryō Harasawa (Japan) and Konrad Sachse (Germany). The Subcommittee acknowledged the important research contributions of those former members especially in the areas of phytoplasmology, haemoplasmology, and diagnostic detection of mollicutes, respectively. Due to resignation of the former secretary (G. Firrao), M. May kept the minutes.

**MINUTE 5. DECEASED MEMBERS**
Joseph-Marie Bové (France) died of natural causes on 3 June 2016. He was 87 years old.

**MINUTE 6. RECOGNITION OF FORMER COMMITTEE MEMBER**
Josy Bové (1929–2016) had been a member of the Subcommittee since 1976. Among his very many lifetime contributions to plant and insect microbiology, Bové was a founding member of the International Organization for Mycoplasmology (IOM) in 1976 and had been an Honorary Member since his retirement in 1998. He served as a member of the IOM Board of Directors 1976–1982 and 1990–1996, and as IOM Chairman 1992–1994. For his roles in establishing the genus *Spiroplasma* and its type species *Spiroplasma citri*, as well as classification of many novel organisms in the genera *Acholeplasma*, *Entomoplasma*, *Mesoplasma*, *Mycoplasma*, *Spiroplasma* and *Candidatus Phytoplasma*, Bové received the IOM Board of Directors Award in 1982 and its most prestigious Emmy Klieneberger-Nobel Award for outstanding research in mycoplasmology in 1984.

**MINUTE 7. ADOPTION OF THE AGENDA**
The written agenda was adopted by unanimous vote.

**MINUTE 8. MINUTES OF THE 2014 MEETING**
The minutes of 2014 meeting in Blumenau SC, Brazil have been published [1] and are available online at http://ijs.sgmjournals.org/.

**MINUTE 9. REPORT OF THE CHAIRMAN**
D. Brown recorded the Subcommittee’s thanks to Christine Knox and the organizers of the 21st Congress of the IOM for providing accommodations for the Subcommittee’s meeting in Brisbane. Brown now serves on the International Committee on Systematics of Prokaryotes (ICSP) Executive Board as Secretary for Subcommittees. The ICSP has a new website (www.the-icsp.org) and during the process of updating, it became evident that the Subcommittee on the taxonomy of *Mollicutes* is one of only 16 ICSP subcommittees that remain vital. A draft revision of the International Code of Nomenclature of Prokaryotes was recently issued.
The Mollicutes Collection of Cultures and Antisera (acronym TMC) is now a member of the World Federation of Culture Collections, and appears in the Global Registry of Scientific Collections/Biorepositories and the Federation of American Societies for Experimental Biology’s Database of US Providers of Research Organisms. Brown and M. May represented TMC at the US Culture Collection Network’s 2015 conference on endangered or orphaned culture collections [3].

MINUTE 10. NEW SPECIES OF MOLLICUTES

The following new species of recognized taxa were effectively published in the preceding biennium: Mycoplasma ciconiae [4]; Candidatus Mycoplasma girerdii’ [5]; Candidatus Mycoplasma haemomuris subsp. musculi’ and Candidatus Mycoplasma haemomuris subsp. ratti’ [6]; Candidatus Phytoplasma cirsii’ [7]; Candidatus Phytoplasma hispanicum’ [8]. There was discussion regarding the standards for subspecies of Candidatus’ mollicutes. In the case of Candidatus Mycoplasma haemomuris’, the two proposed subspecies differ in frequency of detection in different hosts and also in their 16S–23S rRNA intergenic spacer, rnpB and dnaK sequences, but consensus criteria for mollicute subspecies circumscriptions should be developed in the future.

MINUTE 11. PROPOSED NOVEL TAXA IN THE PHYLUM TENERICUTES

The following novel taxa were effectively published in the preceding biennium: ‘Candidatus Izimplasma sp. HR1’ and ‘Candidatus Izimplasma sp. HR2’ [9]; and ‘Candidatus Vermiplasma glacialis’ [10]; Glomeriplasmataceae and ‘Candidatus Glomeriplasma moenium’ [11]. The existence of these uncultured putative organisms remains to be established definitively and the names have no standing in nomenclature. The Subcommittee remains seriously concerned about the unnecessary proliferation of new names appearing in the literature to accommodate alleged novel species, genera and higher taxa of mollicutes whose existence has been inferred principally from the detection of DNA sequences in metagenomic studies. With little supporting phenotypic, phylogenetic or other biological evidence to circumscribe such taxa, and consistent failure to acknowledge the well-established species concept and minimal standards for description of new mollicutes, the Subcommittee cannot endorse such names or the taxonomic or evolutionary concepts that they imply. 

MINUTE 12. THE ORDER ACHOLEPLASMATALES

Attention was drawn to concerns whether Candidatus Phytoplasma’ should be retained within the order Acholeplasmatales. The validity of this placement was recently questioned on grounds that the boundary between 16S rRNA gene sequences of phytoplasmas and acholeplasmas is as clear as the one between 16S rRNA gene sequences of acholeplasmas and anaeroplasmatales, and also that the ecological and genomic architectural characteristics of phytoplasmas are plainly not referable to acholeplasmas or to any other mollicutes [12]. Lengthy Subcommittee discussion brought out the need for further biological characterization of acholeplasmas as well as phytoplasmas. The true diversity of acholeplasmas may be under-appreciated because most clinical or environmental isolates are not further characterized. In vitro culture could allow more complete phenotypic characterization of phytoplasmas, but most of their nutritional, biochemical and physiological properties remain speculative. There is also some doubt regarding the taxonomic justification for phytoplasma nomenclature based on RFLP ‘barcoding’ of specimens that may differ by as little as a single nucleotide polymorphism in 16S rRNA gene sequences. That may be useful for epidemiological studies but is concerning with regard to plant quarantine and trade restrictions without correlated biological data. In summary, the Subcommittee cannot endorse creation of a new order to accommodate Candidatus Phytoplasma’ at this time.

MINUTE 13. SUBCOMMITTEE MEMBERSHIP

M. May was nominated by C. Knox and approved by unanimous vote of members present to succeed G. Firrao as secretary. Christine Citti (France) will succeed G. Browning as an ex-officio member for the coming biennium, and Browning will remain as a regular member. L. McAuliffe (UK) and R. Rosenbusch (USA) no longer participate and the Subcommittee acknowledged their prior service. A. Bertaccini noted the Subcommittee’s loss of expertise in phytoplasmology. Several new candidates for membership on the Subcommittee were suggested based on the need for geographic and specialization diversity, and the curriculum vitae of those interested will be distributed to the current members before a vote.

MINUTE 14. CURRENT MEMBERSHIP

Assunta Bertaccini (Italy), Alain Blanchard (France), Daniel Brown (Chairman; USA), Glenn Browning (Australia), Joachim Frey (Switzerland), Gail Gasparich (USA), Nigel Harrison (USA), Tom Knight, Jr (USA), Christine Knox (Australia), Lucia Manso-Silván (France), Meghan May (Secretary; USA), Laura Regassa (USA) and Dmitriy Volkov (USA).

Ex-officio member: Christine Citti (France).

Emeritus members: J. Dennis Pollack (USA), Shmuel Razin (Israel) and David Taylor-Robinson (UK).

MINUTE 15. NEXT MEETING

The next Subcommittee meeting will be in July 2018 in Portsmouth, NH, USA in conjunction with the 22nd Congress of the IOM.

MINUTE 16. ADJOURNMENT

The closed meeting was adjourned at 15:15 on 3 July 2016.
NOTE ADDED IN PREPARATION
Following review for refereed publication, ‘Candidatus Glomeriplasma moenium’ has been renamed ‘Candidatus Moeniiplasma glomeromycotorum’ [11].
Meghan May, Secretary and Daniel R. Brown, Chairman.

References

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