MIMEAE
THE STANDING IN NOMENCLATURE OF THE NAMES
OF THIS TRIBUS AND OF ITS GENERA AND SPECIES

S.D. Henriksen

Kaptein W. Wilhelmsen og Frues Bakteriologiske Institutt,
Oslo University and Rikshospitalet, Oslo, Norway

SUMMARY. The generic name Colloides is illegitimate because the organisms belong to known taxa within the Enterobacteriaceae. The name Herellea is a nomen dubium and therefore illegitimate, and the name Mima polymorpha var. oxydans is a later synonym. An Opinion of the Judicial Commission is requested on the question of whether the specific epithet lwoffii Audureau 1940 should be conserved against the epithet polymorpha DeBord 1939. If this is decided the tribe Mimeae ceases to exist.

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Although the position of the tribe Mimeae (De Bord 1939, 1942, 1943) in the taxonomic system and the identity of the members of this tribe are uncertain, the names of this tribe and of its genera and species occur in an increasing number of publications, mainly in American literature. The use of these names causes considerable confusion, since the same or very similar organisms are known under other names as well, and a study of their standing in nomenclature may be of some use.

De Bord first described the tribe in 1939 in a very short preliminary note. His description follows: "short rod, gram-negative, encapsulated, pleomorphic; growth on plain agar is abundant, white, glistening, smooth, viscid and the cells are almost wholly diplococcal in form, identical to the gonococcus in size and appearance; many cells retain the blue in Gram's stain in whole or in part; growth in broth is diffuse with a viscid sediment with diplococci, rods and filaments present. Fermentation groups are (1) acid and gas from glucose, maltose, lactose with a few including sucrose, (2) acid only in glucose and maltose, (3) acid in glucose,

(4) no sugars fermented. Motile and non-motile forms are found. Type species, Mima polymorpha, is a non-motile form from group four."

De Bord gives very few technical details in this and subsequent papers. A somewhat more complete description followed in 1942, when the genera Mima, Herellea and Colloides and their species were named. In a third paper (De Bord 1943) nothing is added to the description of these organisms. In the following these names are discussed in separate sections, starting with the simplest cases.

Colloides anoxydana

This organism reduces nitrates, produces indol, is methyl red positive, Voges-Proskauer negative, utilizes citrate and produces acid and gas from glucose, maltose, lactose, mannitol and dulcitol, but not saccharose, salicin and dextrin. It is catalase positive and oxidase negative.

According to De Bord's (1942) data, this species is a representative of several slightly different biotypes (unnamed species of Colloides ?), which vary in sugar fermentation, motility, indol production and citrate utilization, but all of them are well within the definition of the Enterobacteriaceae, and the only character which, in De Bord's opinion, separates them from the coliform organisms, appears to be morphology. However, pleomorphism and production of diplococcus-like cells are not unusual in the Enterobacteriaceae. Any experienced bacteriologist probably has encountered strains of Enterobacteriaceae showing these morphological traits in a more or less marked degree. There is, in fact, no tenable argument in favor of separating these Colloides strains from coliform strains of the family Enterobacteriaceae.

Conclusion: The organisms described by De Bord under the name Colloides anoxydana are coliform organisms, belonging to the Enterobacteriaceae, and the name Colloides anoxydana consequently is illegitimate according to Principle 9 and Rule 24a of the Code.

Herellea vaginicola

This species is stated (De Bord 1942) to "ferment" glucose, mannitol and dulcitol. It is catalase positive, but gives

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negative methyl red, Voges-Proskauer and oxidase reactions and fails to reduce nitrates. Citrates are utilized. Other data indicate that maltose, lactose, saccharose, salicin and dextrin were not fermented, and that some members of the acid-producing group reduce nitrates, produce acid from maltose, salicin and dextrin and are methyl red positive. Motile and nonmotile strains were found.

Although the genus is said to "ferment" sugars, this can probably not be taken to mean that the mode of breakdown was fermentative rather than oxidative. In fact nothing is known about this.

Deacon (1945) reported isolation of some strains believed to be Herellea, but his strains differ from the type species by fermenting lactose and failing to ferment either mannitol or dulcitol. Deacon's description otherwise is very sketchy, but in view of the fact that Ewing (1949) re-examined some of Deacon's strains and found them to react in anti-Bacterium anitratum immune serum, it is reasonable to believe that they were strains of B. anitratum.

Now the important point is whether Deacon's strains were in fact Herellea strains, as defined by De Bord. Apparently they must have been morphologically similar to Herellea, and they fermented glucose, but in contrast to Herellea vaginicola they failed to attack mannitol and dulcitol, but attacked lactose (like many strains of B. anitratum). Thus the differences between Herellea and Deacon's strains are quite as apparent as the points of resemblance, and it is very difficult to accept that these organisms are identical, particularly if Deacon's strains are considered to be the same as Bacterium anitratum.

Bacterium (Achromobacter, Acinetobacter, Cytophaga) anitratum (Moraxella glucidolytica, B5W) (Brisou and Prévot 1954, Lautrop 1961, Piéchaud, Piéchaud and Second 1951) has been described very accurately by Schaub and Hauber (1948), Stuart, Formal and McGann (1949) and by Ferguson and Roberts (1950). According to these descriptions, based on very numerous strains, this organism is an obligate aerobe with a tendency to produce coccoid cells, at least when in the M-form. It does not reduce nitrates and oxidizes glucose, arabinose, xylose, and, in some cases, rhamnose and lactose. All strains produce acid on 10% lactose agar slants and utilize citrate. Results were variable in methyl red, urease and gelatin liquefaction tests. Most strains

were nonmotile. Saccharose, maltose, trehalose, mannitol, adonitol, dulcitol, inositol and raffinose were not attacked, and indol, H₂S and acetoin were not produced.

A comparison with Herellea vaginicola shows that the latter organism resembles B. anitratum in morphology, acid production from glucose, failure to reduce nitrate and encapsulation, and innegative methyl red and Voges-Proskauer tests. It shows marked differences from B. anitratum in fermentation reactions. Since De Bord's study of the biochemical reactions of his strains was incomplete, it is unknown how they behaved in a number of other tests. It does not seem to be reasonable to consider H. vaginicola as identical with B. anitratum, and it may even be impossible, on account of insufficient information, to find out what kind of an organism Herellea actually was. If one does not follow De Bord in considering morphology as a particularly important criterion, it is difficult even to accept that his three genera actually belong in the same tribe, or that B. anitratum belongs in this tribe.

If this line of reasoning is accepted, it follows that B. anitratum is the first effectively published name for that organism. It is true that the generic name is illegitimate, having been placed on the list of nomina rejicienda, but the specific epithet anitratum remains valid and should be the specific epithet of this organism no matter in which genus it is finally placed.

As Herellea vaginicola seems to be unrecognizable, this name seems to be a nomen dubium and should be rejected according to Rule 24f of the Code.

Conclusion: Herellea vaginicola is not the same organism as the one named Bacterium anitratum by Schaub and Hauber. The use of the name Herellea vaginicola for the latter organism consequently is incorrect. Since Herellea vaginicola seems to be unrecognizable, the name should be rejected as a nomen dubium.

Mima polymorpha var. oxydans

Moraxella nonliquefaciens (M. duplex var. nonliquefaciens) frequently is very pleomorphic (Murray and Truant 1954, Flamm 1957, Henriksen 1958) and sometimes shows a very marked tendency to produce diplococcus-like cells. It also often shows a tendency to retention of the Gram stain.

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It sometimes gives all the biochemical reactions listed by DeBord for Mima polymorpha. It is consequently impossible to distinguish between these two organisms. Moraxella nonliquefaciens was described and given a name by Scarlett as early as 1916, and it has long been considered to be related to Moraxella lacunata. The name Mima polymorpha var. oxydans consequently must be considered as a later synonym.

Conclusion: The name Mima polymorpha var. oxydans is a later synonym of Moraxella nonliquefaciens, and consequently illegitimate.

Mima polymorpha

This is the most difficult case. M. polymorpha is the only species named by De Bord in his preliminary paper (1939), and it is a decisive question whether the description of this species can be considered to fulfill the requirements of the rules of nomenclature. Rule 12a states that a name of a taxon is not validly published unless it is accompanied by a description of the taxon. De Bord's first paper gives a very short description of the tribe. The only statement about the species Mima polymorpha is this: "Type species, Mima polymorpha, is a non-motile form from group four.", and group (4) is described thus: "no sugars fermented." This is a very sketchy and seemingly inadequate description of a new species. Even if the description of the tribe is taken into consideration, it would be difficult or impossible to recognize the organism from De Bord's description. It is not a description that would be considered sufficient according to the standards of 1939. This question is important, because, if the 1939 description of Mima polymorpha is not considered to be adequate, this name does not have priority. Before De Bord published his more detailed, although still not very complete, description in 1942, an organism which very probably was the same had been described by Audureau (1940) and named Moraxella lwoffii.

In view of the fact that Mima polymorpha seems to be the only species of the tribe Mimeae which possibly could be considered as legitimate, it would be the most satisfactory solution if this name could be suppressed, since this would automatically dispose of the tribe Mimeae as well.

Since this question may appear to be dubious, the best

course of action might be to conserve the specific epithet lwoffii against the epithet polymorpha. No action has to be taken with respect to the generic names, since the taxonomic problem as to the genus or genera in which these organisms should be placed must be considered as undecided.

Conclusion: It is very questionable whether De Bord's description of Mima polymorpha in 1939 is adequate. It is suggested that the epithet lwoffii should be conserved against polymorpha.

Mimeae

A tribus is a subdivision of a family, but in the case of Mimeae, the situation is anomalous, since this tribe has not been assigned to a family. De Bord considered (1942) that the combination of morphological and biological characters of his organisms "would constitute a combination sufficient to warrant at least tribal designation." Why he chose to consider his organisms as a tribe and not as a family is obscure. A tribe which does not belong to any particular family is unusual in the taxonomic system.

If the names Colloides, Herellea and Mima polymorpha var. oxydans are considered to be illegitimate, and if, furthermore, it is decided to conserve the epithet lwoffii against polymorpha, the tribe Mimeae is deprived of all its species and genera, and the name ceases to have any meaning.

Conclusion: There seems to be no place for the tribe Mimeae in the taxonomic system.

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