

CONCLUSIONS TO THE INTERNATIONAL COLLOQUIUM ON THE GENUS MYCOBACTERIUM

by

S. R. PATTYN

*Laboratorium voor Bacteriologie
Prins Leopold Instituut voor Tropische Geneeskunde
Nationalestraat 155, 2000 Antwerpen, Belgium*

Es ist eine Tradition in diesem Institut dass am Ende jedes Kolloquiums der Person der für die Organisation des Wissenschaftlichen Teils verantwortlich ist, auch bestraft wird eine Zusammenfassung des Kolloquiums zu machen.

Obwohl dass nicht auf dem Programm steht werden Kluge Teilnehmern es gemerkt haben dass es eigentlich 4 Abteilungen gab.

Während des ersten Nachmittags haben wir das Verfahren gehört was in verschiedenen grosse Referenzlaboratorien routinemässig angewendet wird um Mykobakterien zu identifizieren.

In das zweite Teil handelte es sich um einige einzelnen Spezies oder Gruppen von Mykobakterien.

Das dritte Teil betraf spezielle Techniken wie Chromatografie, Immunoprecipitation und reine Biochemischen Leistungen.

Das Thema des letzten Teils war die Mykobakterien in die Umgebung.

The strategy of identification was different in each laboratory from where it was reported.

To be frank, I had hoped that during the discussion the speakers would have compared the respective merits, advantages and disadvantages of the different approaches.

Apparently it is too early to do so, and probably too difficult : everyone of us works in different circumstances, and is confronted with different limiting factors. And after all, our subject is very young : it is only during the last ten years that a sufficient number of techniques are at our disposal to perform the work. In the so much older field of enterobacteriaceae the identification strategies have certainly rarely been evaluated.

As Dr Schröder stressed so correctly nobody argues any more *what* should be done but *how* it should be done.

The evaluation of the several strategies presented at this Colloquium will probably be done individually in the quiet calm of the office, home, with the aid of the printed monography that will be available in a few months.

Dr Jenkins very rightly stressed the difference between academic and routine identification — I should probably say differentiation — Dr Boisvert brought us the notion of « opportuniste majeur ».

We heard with pleasure that Dr Kappler could confirm the value of the slide agglutination as proposed by Engel, and we heard again how difficult it is for some laboratories to obtain satisfactory amidase tests; for this test there is surely no other place in the world like Borstel !

We even learned a few tricks — and this is one of the major things for a Colloquium, since this is a common subject for private discussions between and after formal presentations. — Dr Kappler learned us how to improve nitrate reductase tests and Dr Jenkins gave for the rapid information on the usefulness of the cotrimoxazole disk for the rapid recognition of *M. marinum* of which we all apparently observe more and more cases contracted from private aquaria.

We have had the pleasure to have among us « our man from Habana » who discovered the so intriguing *M. habana* which has become the subject of intense study in several laboratories.

Comme cela se passe si souvent avec les mycobacteries, certains comme M. Boisvert, avec une longue experience d'une pratique minutieuse, ont deja rencontre de telles souches dans le passe.

Du coup l'interet augmente a nouveau considerablement pour les souches de *M. Weiszfeiler* et nous avons particulierement apprecie sa communication concernant *M. simiae* et *M. asiaticum* qu'il faudra surement comparer de pres avec *M. habana*. Ceux qui n'avaient pas de programme de travail pour les semaines a venir ont pu prendre ici de l'inspiration.

We heard the preliminary report on the *M. rhodochrous* study.

My clever plan to obtain some information on the computerized results of the International Cooperative Study on the Rhodochrous Group did not succeed, Arne Lind kept the secret well, it should remain the big surprise for the trip to Tokio and Hiroshima later next year. We will by then we hope, also have the results of the Second International Cooperative Study on Group IV just to make identification schemes still a bit more complicated.

In any way it is no more possible now to study rapidly growing mycobacteria without making use of the big apport Mike Goodfellow has brought us with the application of chromatography.

If the distinction between Nocardiae and Mycobacteria has been one of the most debated and difficult subjects for the Mycobacteriologist, he has now at once a technique that is also suitable for other connected genera as Corynebacteria, Orskovia, Athrobacter, Actinomadurae and Rhodochrous organisms.

Dr Engel reviewed nicely for us the problem avium-intracellulare especially the so difficult matter of virulence, and the nice confirmation of the opaque papillae developing upon the transparent colonies.

We hope that his *in vitro* test in macrophages will prove to be reliable.

Dr Jenkins and Marks were the first — as far as I know — to apply successfully chromatography to Mycobacteria. We are grateful to them to have delineated precisely the present status and usefulness of their technique. I am sure quite a few people who have attended this meeting are going to buy chromatography equipment in the near future.

With the work of Kubin and Wisingerova we come into the technique of immuno-precipitation. Here also each worker applies his own technique, our Czech friends combine fractionation and characterisation of proto-

plasma antigens with immunologic methods. Future developments will show the real value of this technique.

All of you will probably agree with what I said already yesterday in relation with the work of John Stanford, it is impressive. His printed paper will probably also be frequently referred to in the future since it gives us a complete survey of the present status of his work.

Prof Meissner yesterday pointed to the importance of the work John Grange has done about the intraspecies variation among *M. ranae*, one day or another somebody will certainly have to investigate in an analogous way the *M. avium-intracellulare* species — or as some still say — complex.

Some biochemists also have turned their attention away from the eternal *Escherichia coli* to interest themselves for Mycobacteria. The complete inventory of the glycolysis has been made. We now know that the direct oxidative pathway does exist in *M. phlei* and is lacking in *M. tuberculosis*, that all the enzymes for the glycolytic pathway are equally present in both species but the substrates with 6 carbon atoms accumulate in the slow grower. We would like to have this knowledge extended to other species of the genus realizing however that this is a formidable task.

And all this knowledge brings us, as medical or veterinary microbiologists, back to one of our original tasks : microbial ecology as a basis for epidemiology. Indeed we are now better equipped than before, to go back to work our predecessors, of the beginning of the century did : look for mycobacteria in our polluted environment.

The work of Kleeberg is a direct expression of the practical economical importance of Mycobacteria in abattoirs and is nicely completed by the discovery of Mycobacteria of the avian group in milk centrifugate before pasteurisation, by Prof Tacquet.

The number of Mycobacterial strains isolated from the environment becomes impressive.

Dr Beerwerth, who isolated them on a large scale probably the first, now turns his attention to the experimental study of substrates for known species of mycobacteria. Some of them are able to multiply on most substrates. His method of decontamination has found grateful application as we heard by at least two other speakers : Kleeberg and Portaels.

Le travail de nos collègues français est impressionnant : le nombre de souches est extrêmement élevé ainsi que le pourcentage de souches identifiées.

Les Drs Viallier ont dressé un vaste tableau digne des grands naturalistes, grâce à leurs enquêtes nous disposons maintenant de données sur des biotopes extrêmement divers.

Pour qui ne le savait pas encore les mycobactéries réservent souvent des surprises : en effet si les mineurs du Nord de la France font assez souvent des mycobactérioses à *M. kansasii* cette espèce ne fut pas retrouvée dans les mines par le groupe de M. Tacquet.

Par ailleurs, l'inefficacité des procédés de l'épuration des eaux sur la flore mycobactérienne constitue une donnée pratique des plus importantes.

Two speakers presented results on the tropical environment, and both showed its abundance of Mycobacteria.

The aim is to isolate *M. ulcerans*. There is a friendly competition going on between Stanford — Paul on one hand and our group on the other. Until today our search has been unsuccessful. The work however continues.

We regret deeply the absence for personal reasons of H. Kleeberg and for health reasons of Mogens Magnusson and Eugène Kubala.

I hope you will agree with me that we all had the opportunity to learn something and therefore we thank sincerely the Director of this Institute for the opportunity the family of Mycobacteriologists was given to gather here for the sake of the genus Mycobacterium.

As a measure of evaluation for this colloquium the number of strains, reprints and additional stuff that is going to be sent in the next few days from one lab to another could be counted.

And last but not least, il faut que je remercie, au nom de tous, le personnel administratif et technique de l'Institut qui ont fourni le travail inconnu, souvent invisible, parfois extrêmement ardu, p. ex. celui qui consistait à reproduire certains textes arrivés 24 heures avant le début du Colloque et qui ont rendu ces séances ce qu'elles furent. Tout cela sous l'inépuisable et toujours charmante et efficace direction de l'homme qui est responsable du hard ware du Colloque : M. Graré.

Je félicite tous ceux qui ont pris la parole tant au cours des exposés que des discussions et je vous dis « tot weerziens ».