

Preface to the Second Edition

A decade has passed since the primary literature sources were collected and the first edition of this book written. This period of time seems to be relatively short when one considers that mycobacteria were first reported 100 years ago. On the other hand, the known range of mycobacteria has been greatly extended in recent years. The introduction of molecular biology methods has brought about a remarkable burst in the description of new species. While about 70 mycobacterial species were registered at the time of the first edition, more than 130 of them are known at present. With the discovery of new mycobacterial species, the cases of human and animal immunocompetent and immunosuppressed hosts and the isolation of mycobacteria with the enzymatic potential to cause the degradation of aliphatic organic substances are increasing in numbers almost as rapidly.

In order to be able to cover all of the most significant mycobacterial species, it was necessary to consider the ecology of mycobacteria as a discipline that would not only include the external environment but also the occurrence of mycobacteria in animal and human organisms, where interaction occurs. The environment is neither non-living nor static, but the very opposite. It undergoes periodic and other changes (seasons of the year, changing biotic and abiotic factors), while animal and human organisms have the static tendency towards a status *quo ante*. The classification of mycobacteria into respective disciplines such as epidemiology, epizootiology, immunology and environmental ecology did not contribute to a comprehensive understanding of their significance. Therefore, in this book mycobacteria are presented as a whole, under the general designation of mycobacterial ecology, and without limitation by any particular discipline.

This enabled us to concentrate our attention on the genus *Mycobacterium* in all kinds of environments in which they can live, i.e. in macro-organisms as well as in nature. Special attention was paid to the conditions under which mycobacteria can survive, multiply or exist in a dormant state. Of more than 100 species only a few are obligate pathogens for humans and animals. These are unable to grow in the natural environment, but have developed special strategies for reaching susceptible individuals. Furthermore, potentially pathogenic mycobacteria possess the ability both to multiply in natural environments and to cause diseases. A transitional phenomenon creates mycobacterial species that live in the environment and provoke allergic reactions in animals. The majority of mycobacteria are saprophytic and some of them serve as nutrients for dragonfly larvae.

The phylogeny of mycobacteria indicates that pathogenic species developed from saprophytic ones. There is evidence to suggest that the disturbance of their natural

habitats and the overlapping of these biotopes by humans and animals contributed to the spread of mycobacteria and perhaps to their convergence to pathogenicity.

It was not our intention to present a compendium covering all published results, but rather to issue a "readable" book, which is illustrative and thus focused on the principle facts. The increase in the number of Editors has allowed the sharing of original experiences regarding the ecology of mycobacteria, published here for the first time in some cases. The supplemented edition should serve as a guide to these discoveries and also contribute to an understanding of clinically significant species in human and animal medicine.

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