

# MARIJUANA

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*Chemistry · Pharmacology · Metabolism  
and Clinical Effects*

EDITED BY

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## Preface

Marijuana, hashish, charas, dagga, bhang, and other *Cannabis sativa* L. preparations are estimated to be consumed by 200-300 million people and hence represent the most widely used group of illicit drugs. However, until the late 1950's, the use of cannabis was a minor problem in western society and interest in it was marginal. In recent years the smoking of marijuana by young people in North America and, to a lesser extent, in Western Europe and culturally related countries has assumed epidemic proportions, and public interest in the short- and long-term effects of the drug has become intense. It is a sad truth, however, that until very recently critical scientific evaluations of the different aspects of the problem were few. This lack of pharmacological and clinical data was due, to a large extent, to the fact that the state of our chemical knowledge of cannabis was limited. The use of crude marijuana, or extracts from it, for detailed and reproducible biological work has many disadvantages, the major one being the notorious variability of cannabis preparations. Hence, a firm chemical basis is a prerequisite for quantitative biological work for which pure and well-defined substances are needed. Until 1964 the major active component had not been isolated in pure form and its structure had been known in a general way only. Numerous cannabinoids were known to be present in the plant but only a few had been isolated, and the structure of only one, the psychotomimetically inactive cannabiol, had been fully elucidated.

In the last few years intensive chemical investigations have considerably clarified the chemistry of marijuana. Most natural cannabinoids have been isolated and purified, their structures have been elucidated, syntheses of most of the components have been accomplished, analytical methods have been developed, and metabolic investigations are underway in many laboratories. On this chemical foundation an impressive edifice of pharmacology and

experimental psychology has evolved. The number of publications appearing every month on various biological aspects of cannabis action is truly staggering, and the end is nowhere in sight.

The aim of this book is to present the state of the art in cannabis chemistry, in pharmacology, and in the clinic. Although numerous symposia and reviews on cannabis have been published there has not been a book covering all these aspects. I believe that we have answered a need rather than just burdened the library budgets. The chemical chapters, for reasons stated above, present a more complete picture than the metabolic and pharmacological ones. In the latter the gaps in our knowledge are obvious and present a challenge. The most pressing need seems to be for more detailed information on human metabolism and long-term effects of cannabinoids.

Clinical publications differ from laboratory ones: the latter are experimental, the former are frequently just observational. This dichotomy is clearly reflected in the last chapter. Most of the papers cited describe "cases" rather than "experiments." Hence the conclusions drawn may not be accepted as readily by the reader as those of the previous chapters. I believe, however, that in a field so full of contradictions and heated debate the material has been presented objectively.

The contributors have not tried to draw a picture, even if such a picture were possible, from which a clear-cut decision on the social and legal aspects of the problem can be made. To quote Dean Gerald Le Dain, head of the Canadian Royal Commission on the Non-Medical Use of Drugs: "In the end, the decisions in this field are very complex moral decisions based on a number of imponderables and competing values, and in many cases they involve a choice of the lesser of evils. There are few easy choices. There is no way that these kind of decisions can be passed over to experts. In the end, they will have to be handed back to [the public]."

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