

Progress in Essential Oil Research

Editor E.-J. Brunke



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on Essential Oils

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Editor
Ernst-Joachim Brunke



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Progress in Essential Oil Research

Preface

The 16th International Symposium on Essential Oils took place in Holzminden-Neuhaus (Fed. Rep. of Germany), close to the town of Holzminden, the centre of the German fragrance and flavour industry.

The first symposium of this series was organized in Leiden in 1969 by the pharmacognosists Dr. F.W. Hefendehl (Freiburg, Germany), Dr. K.-H. Kubeczka (Karlsruhe, Germany), Dr. J. Karlsen and Prof. Dr. A. Baerheim Svendsen (both Leiden, Netherlands) as an informal meeting to discuss problems concerning the analysis of essential oils.

At the outset the group of participants was small, but in the course of 15 years it grew steadily. Chemists, biologists and pharmacognosists from universities and industry joined the group in order to discuss new findings in essential oil research.

The 16th Symposium on Essential Oils in Holzminden-Neuhaus was attended by about 120 participants from the following 27 countries:

Australia, Austria, Belgium, Brazil, Czechoslovakia, Egypt, Finland, France, Germany (Fed. Rep.), Great Britain, Greece, Hungary, India, Indonesia, Iran, Israel, Italy, the Netherlands, Nigeria, Norway, Portugal, Rwanda, South Africa, Spain, Switzerland, Turkey, Yugoslavia.

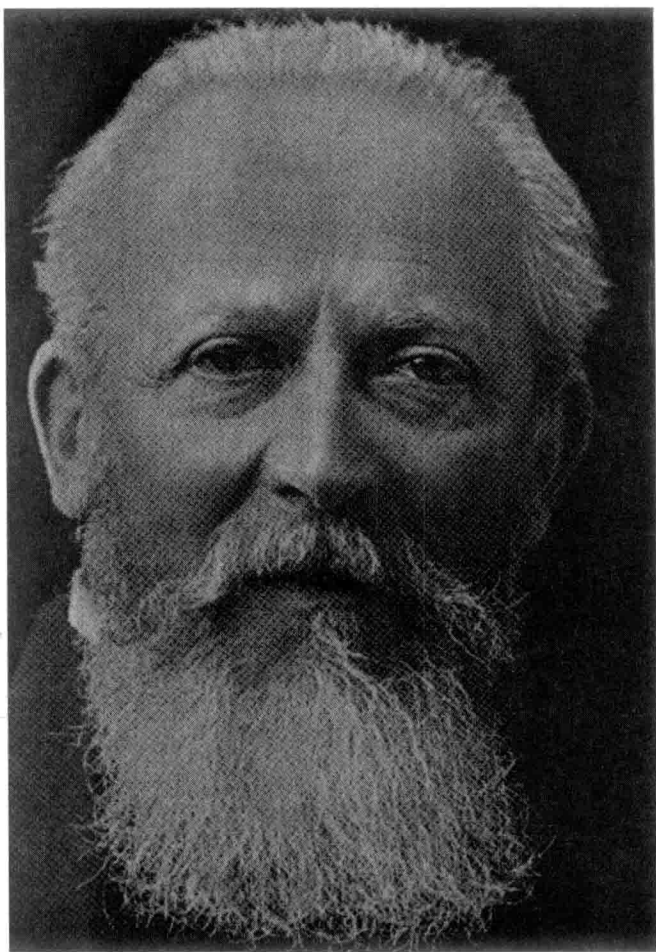
The Programme covered several aspects of essential oil research:

- isolation and structure elucidation of new natural components from essential oils
- syntheses of terpenoids and related substances
- chemotaxonomy, botany and agriculture of essential oil plants
- microbiology and biotechnology of terpenoids
- methods for the analysis of volatile mixtures.

There are problems involved in bringing together experts from so many different disciplines as genuine effort is required for a specialist in one discipline to listen to something from another discipline which may be unfamiliar to him - not only to listen, but to absorb.

The benefits to be gained, however, are substantial. The work of others may help us to delineate our own work more clearly and it may give us ideas for future work, ideas which we would not otherwise have been able to obtain.

Ernst-Joachim Brunke



OTTO WALLACH
1847 - 1931

Otto Wallach Memorial Session

The first session of the 16th Symposium on Essential Oils was held in honour of Professor Otto Wallach.

Otto Wallach was born in Königsberg (East Prussia) in 1847. After studying Chemistry in Göttingen and Bonn, Wallach became the assistant of Professor Kékulé. In 1889, at the age of 42, Otto Wallach became director of the Chemical Institute of the University of Göttingen, where he worked for more than 25 years. His main work was concerned with the structure elucidation of terpenes. In 1910, Otto Wallach summarized a great number of his publications in his book entitled "Terpene und Campher". Also in 1910 he was honoured with the Nobel prize. Otto Wallach died in Göttingen in 1931 as one of the pioneers of terpene research.

In 1964 the Otto Wallach foundation was established by DRAGOCO. The "Gesellschaft Deutscher Chemiker" honours scientists who have contributed in an outstanding manner to the field of terpene chemistry with the Otto Wallach prize:

- 1966 Prof. Dr. Dres. h. c. Walter Hückel (Tübingen)
- 1969 Prof. Dr. Guy-Henry Ourisson (Strasbourg)
- 1974 Prof. Dr. Ferdinand Bohlmann (Berlin)
- 1977 Prof. Dr. Hermann Eggerer (Munich)
- 1981 Dr. Günther Ohloff (Geneva).

There were two reasons for dedicating the first session of the 16th International Symposium on Essential Oils in memory of Otto Wallach:

- Otto Wallach received the Nobel prize 75 years ago
- geographically, Neuhaus is situated very close to Göttingen, where his main work was accomplished.

Biography: W. Hückel. 1961. Chem. Ber. 94, p. VII - CVIII.

Acknowledgements

The members of the scientific committee,

Prof. Dr. A. Baerheim Svendsen (University of Leiden, Netherlands)
Dr. E.-J. Brunke (DRAGOCO, Research Dept. Holzminden, West Germany)
Dr. R. Hopp (Haarmann & Reimer, Research Dept. Holzminden, West
Germany)
Prof. Dr. K.-H. Kubeczka (University of Würzburg, West Germany)

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The Editor is grateful

- to the large number of colleagues from universities and industry, who presented their scientific results as lectures or posters during the symposium and as chapters of this book
- to the publishers of this book, Walter de Gruyter & Co., for their guidance and assistance
- and to Mrs. Heike Gruber for her valuable assistance in organizing the symposium and editing this book.

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Composition of Essential Oils,
Flavours and Flower Volatiles

THE FLAVOUR OF THE PASSIONFRUIT - A REVIEW

Frank B. Whitfield, John H. Last

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Introduction

In recent years there has been considerable interest in the identification of volatile flavour components in tropical fruits, including such exotic species as mango, papaya, cherimoya and guava (1). There has also been renewed interest in the flavour of the passionfruit, genus Passiflora, species of which were first investigated in some detail in 1972 (2,3,4). These new studies, including research on the biosynthesis of several important flavour components, have led to a better understanding of the flavour of the two commercially important varieties. With this newly gained understanding, now is an opportune time to review our knowledge of the flavour of the passionfruit, and to establish areas of research for future investigations.

There are about 400 known species of Passiflora of which some 30 are reported to bear edible fruit (5). All are probably indigenous to the American tropics and most of the edible varieties are known only in the native markets in some South American countries, Mexico and the West Indies. However, very few species have achieved commercial development, and of these the best known is the purple-skinned Passiflora edulis Sims and its closely related yellow-skinned mutant Passiflora edulis f. flavicarpa Degener. Although closely related, these varieties yield fruits which clearly differ in their skin colour, size and shape, and for the consumer the most important difference is the flavour of their respective juices. Both fruits are distinguished by a unique flavour; the purple passionfruit has an intensely pleasant, floral, fruity aroma, whereas the yellow variety has an exotic