

INCOMPATIBILITY IN FUNGI

A Symposium held at the 10th International Congress of Botany
at Edinburgh, August 1964

Edited by

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SPRINGER-VERLAG · NEW YORK INC.

1965

ISBN 978-3-540-03334-9 ISBN 978-3-642-87052-1 (eBook)
DOI 10.1007/978-3-642-87052-1

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Library of Congress Catalog Card Number 65-26237
Title No. 1318

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Foreword

Sexual reproduction in the fungi is extensively regulated by incompatibility, which determines, in the absence of any morphological differentiation, the pattern of mating among individual strains. Control of the interactions that comprise the sexual reproductive process resides in specific genetic factors, the incompatibility factors, which occur in several distinct systems in the various groups of fungi and which exert their control in two basically different ways. On the one hand, the system may play the same role as dioecy in higher organisms by restricting or preventing inbreeding among the members of the same race (*homogenic incompatibility*) and thus enhance outbreeding. On the other hand, the system may impose the opposite effect by restricting or preventing interbreeding between members of different races (*heterogenic incompatibility*) and thus promote inbreeding. In addition to these basic facts concerning the general biological significance of incompatibility, important advances have been made in recent years, especially in the investigation of the genetics of incompatibility systems. Sufficient information concerning the genetic determination of incompatibility is now available to understand many phenomena which were very mysterious in the 1920's, when H. KNIPE, of Würzburg, Germany, laid the groundwork for all subsequent study of incompatibility in the higher fungi. Furthermore, there is at present enough conceptual understanding of the physiological activity of the incompatibility-genes and of their action in morphogenetic processes to permit at least the formulation of plausible models of the operation of incompatibility systems.

On the occasion of the X. International Botanical Congress in Edinburgh, a Symposium, entitled "Incompatibility in Fungi", brought together many of the workers who are active in studies of fungal incompatibility. The Symposium was organized to provide the opportunity both for the reporting of still unpublished results as well as for the consideration of previously published work in synoptic presentations. The editors were of the opinion that it would be useful to make the materials of the Symposium available to a wider circle of workers and students and thereby to strengthen such interest as now exists in this area of research and possibly to arouse new interest. The authors of the several papers agreed to provide manuscripts of their presentations, and we took the trouble, at the time of the Symposium, to have notes taken of the discussion that followed each paper. The discussions following the individual papers below have been prepared, in collaboration with the participants, by Dr. STANLEY DICK. Responsibility for the contents of papers belongs, of course, to their individual authors, and editorial changes have been held to the minimum required for consistent

terminology. The one exception to this editorial practice is the paper of Professor BURNETT, which could not be brought into conformity without serious alternation of meaning.

It is our pleasant obligation to thank all of those who have supported our efforts of making the Symposium available in published form by the contribution of manuscripts and items of discussion. We also thank Mrs. MURIEL WILLIAMS for secretarial assistance and Frau A. GEBAUER for both secretarial assistance and for the preparation of the Index. Finally, our thanks are also extended to the owners of Springer-Verlag, who have made this publication possible and who have fulfilled all of our wishes regarding the content and format of the following book.

K. E.

J. R. R.