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A STUDY OF CYSTIDIA IN EFFUSED APHYLLOPHORALES

by

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A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy.

February, 1969.

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SUMMARY

1. Selected species were studied, most of which were type species of genera of effused Aphyllophorales. The morphology and development of hyphae, cystidia, basidia and whole fructifications were traced by dissecting or sectioning primordia and growing edges of young fructifications, and also in more mature parts.
2. Six different categories of cystidia were recognised and described on the grounds of their morphology and development: skeletocystidia, metuloids, gloeocystidia, leptocystidia, radicate cystidia and hyphocystidia. The categories previously termed "tranal" and "hymenial" cystidia were shown to be misleading and of little practical use.
3. Measurements of cystidia and basidia in three species were statistically analysed. The analyses showed that not all cystidia may be interpreted as sterile homologues of basidia, thus confirming the conclusions drawn from developmental studies in these three species.
4. The crystals encrusting cystidia in three species were shown by X-ray diffraction to be composed of the dihydrate of calcium oxalate.
5. In the species studied, the fructifications showed three main patterns of development. On the whole

these correlated well with taxonomic groupings of species made on other grounds.

6. In most species the fructifications were found to thicken by the well-known process of hymenial thickening. In a few species the fructifications thickened by means of either a repetitive basal layer or a repetitive context.
7. Some observations are made on the factors giving rise to a stratified appearance in the context of some fructifications.
8. Some of the possible functions of cystidia are discussed.
9. The information gained in regard to cystidial types and developmental types in fructifications is put to taxonomic use. These are not important as taxonomic characters above the generic level but are used to clarify many controversial issues at the specific and generic levels.