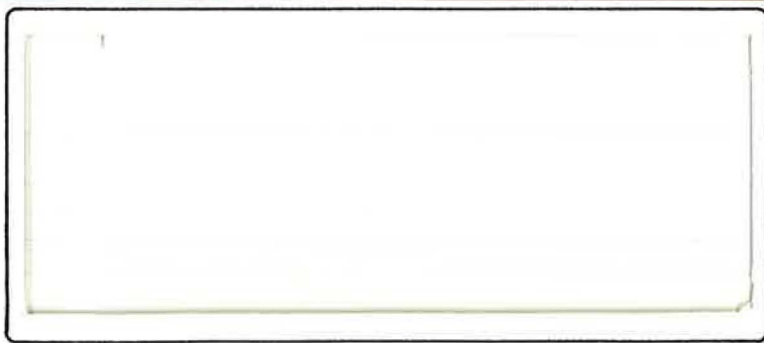


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MOULD RESEARCH IN THE ZOLDER HOUSING ESTATE

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IEA ANNEX XIV  
CONDENSATION AND ENERGY  
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LIST OF ABBREVIATIONS

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- A.a. : *Alternaria alternata*  
A.f. : *Aspergillus fumigatus*  
A.p. : *Aureobasidium pullulans*  
A.n. : *Aspergillus niger*  
Cl.c. : *Cladosporium cladosporoides*  
Cl.h. : *Cladosporium herbarum*  
G.c. : *Geotrichum candidum*  
P.v. : *Paecilomyces variotii*  
P.b. : *Penicillium brevicompactum*  
P.c. : *Penicillium cyclopium*  
P.F. : *Penicillium funiculosum*  
S.b. : *Scopulariopsis brevicaulis*  
U.c. : *Ulocladium consortiale*  
M. : *Mucor* sp.  
R. : *Rhodotorula* sp.
- 20/86 : at 20 c and 86% relative humidity  
20/92 : 20 92  
20/99 : 20 99  
30/86 : 30 86  
30/99 : 30 99

## 2.2.1 MOULD GROWTH

### A. Introduction

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Questions to be answered were:

- which species do occur?
- are there different species on the same spot or is one species dominant?
- are the species different from one dwelling to another or do the same species occur in all the houses?
- are there differences according as the finishing materials or the presence of f.e. fat on the kitchen walls?

The first two questions ask about the diversity of the species; the last two are questions about the distribution. In this chapter we will try to give an answer to both these questions, on the one hand by a determination of the species encountered in the estate and on the other hand by a visual representation of the distribution by means of correspondence-analysis.

### B. Situation

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Fungi were isolated in 4 dwellings of the Zolder estate:

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house A	Beukenstraat 21
house B	Beukenstraat 23
house C	Berkenstraat 46
house D	Populierenstraat 18

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Tabel 2.1 shows where the samples were taken and which were the finishing materials. Figure 2.3 shows schematically the method used for isolation and determination.

### C. Results

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Table 2.2 shows which species occur in the estate,

The fungi encountered are not specific for this site: they are worldwide spread and are isolated on a lot of substrates. They are able to grow and sporulate in a great range of temperature and PH. The relative humidity however should be limited from 92 to 100% to allow the species to grow. Some species (*Cladosporium Herbarium*, *Penicillium Cyclopium* and *Scopulariopsis Brevicaulis*) may grow at 86% relative humidity. All the species are in a greater or less degree able to decompose and use cellulose of all kinds of substrates: starchy limes, wallpaper, linen and paint may be carbon sources.

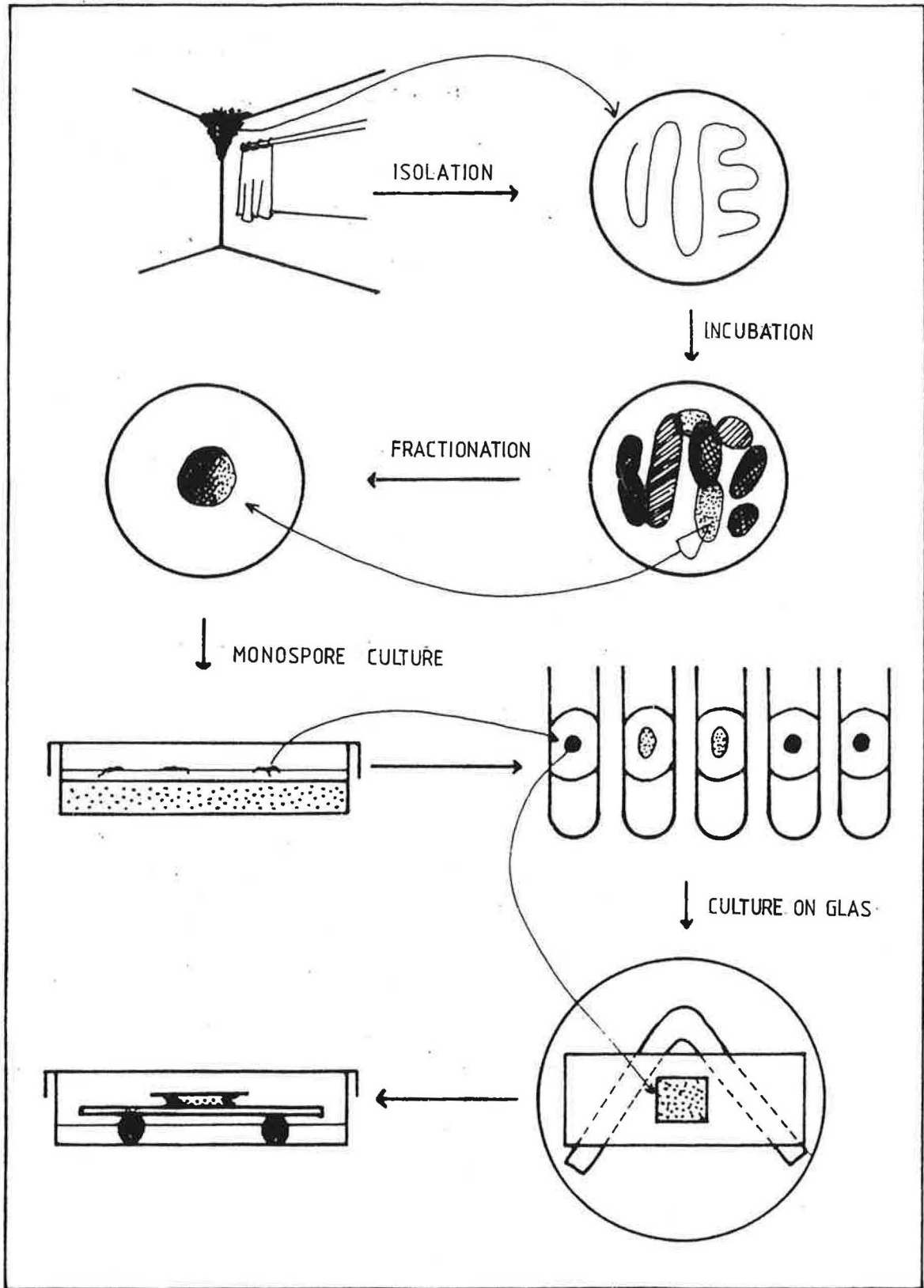


FIGURE 2.3 : schematical representation of the methods used for isolation and determination

Tabel 2.1

sample	place	finishing material
A1	living room	wallpaper
A2	bedroom	paint
A3	hall	vinyl
A4	kitchen	wood
B1	bedroom	wallpaper
B2	bedroom	wallpaper
C1	hall	wallpaper
C2	bedroom	paint
D1	bedroom	paint
D2	hall	paint

A = Beuk 21

B = Beuk 23

C = Berk 46

D = Populier 18

species	A1	A2	A3	A4	B1	B2	C1	C2	D1	D2
A.a	0	0	0	0	1	1	0	0	0	0
A.f	0	1	1	1	1	1	1	0	0	0
A.n	0	0	0	1	0	1	0	0	0	0
A.p	0	0	0	0	0	0	0	0	1	0
Cl.c	1	1	0	1	0	0	1	0	1	1
Cl.h	0	0	1	0	1	1	0	0	0	0
G.c	0	1	0	0	0	1	0	0	0	0
P.v	1	0	0	0	0	0	0	0	0	0
P.b	0	0	0	1	1	1	0	0	0	0
P.c	1	1	0	1	1	0	1	0	0	0
P.f	0	0	0	0	1	1	1	0	0	0
S.b	0	0	0	0	1	0	0	0	1	0
U.c	0	0	0	1	1	1	1	1	1	1
M.	1	0	0	0	0	1	1	0	0	1
R.	0	0	0	0	0	0	1	0	0	0
S.m	0	0	1	0	0	0	1	0	0	0

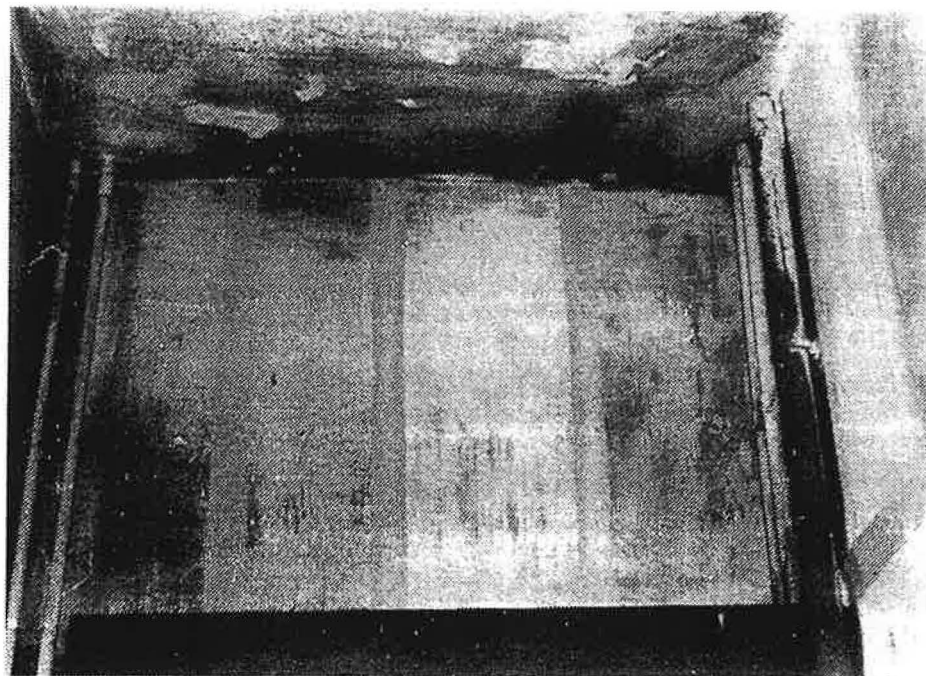
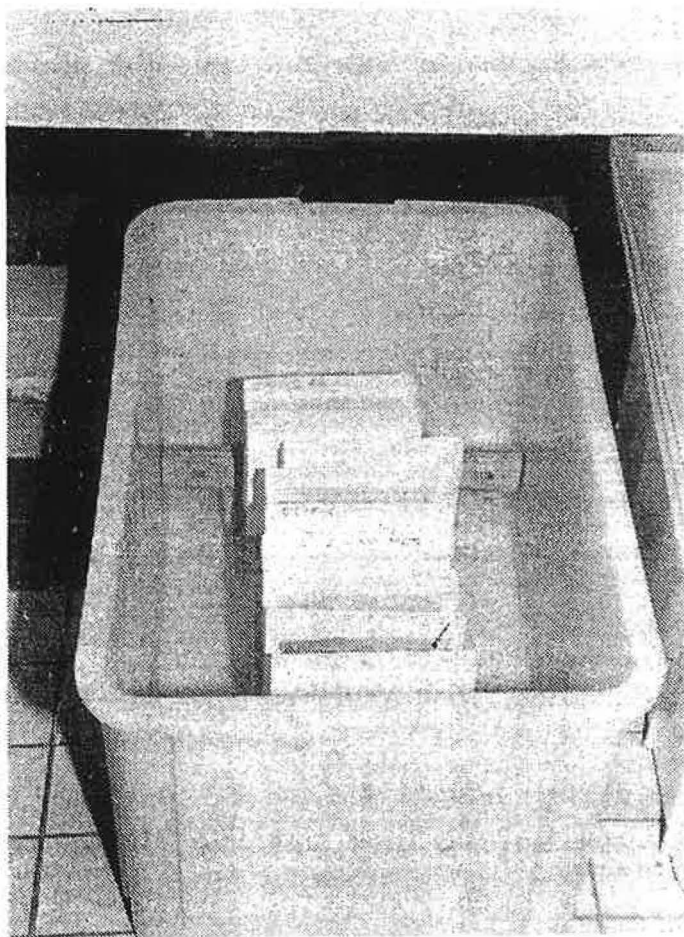
TABEL 2.2: distribution of the species

A1...D2 : rooms cf.tabel 2.1

1 : species present

2 : species not present

"moist room"



Division into strips (82 x 25 cm) of the bathroom wall:  
From the left to the right: not treated; treated with anti-  
moss; HG-moist and stain cleaner; paramoss

In the houses B, C, and D the species are well defined: the moulds in one dwelling are similar, but they differ from one dwelling to another.

In house A on the other hand there is a great difference between the species found in the different rooms.

This may be due to the difference in finishing materials.

In house B we have a lot of different species on the same spot, but they are all very familiar.

In house C there are less and in house D there are very little different species but the diversity in both these houses is greater.

#### D. General conclusion

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We may say that in the 4 dwellings investigated, some 16 species were found. The composition of the species is not the same everywhere but differs from one dwelling to another, from one room to another and even from one finishing layer to another.

## 4. THE RETROFITTING PROBLEM

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### 4.1 THE USE OF FUNGICIDES

In the bathroom of house 10, Beukenstraat 21, the effect of fungicides has been tested.

After cleaning, on the 19th of January 1987, the outside wall was divided into 4 strips: one strip didn't get a treatment; the other 3 were treated with following products: (following prescriptions of the manufacturer)

- ANTIMOSS (Product of Levis, registration number 1083B)
- PARAMOSS (Product of Trimetal Paint ITI, registration number 8112NL)
- HG moist and stain cleaner

On the 6th and 27th of February and the 20th of March 1987, the walls were evaluated visually on mould growth.

After two months of observation no resumption of mould growth could be seen, not even on the non-treated zone.

Even now, after about a year the mould seems not to be active.