

ATMOSPHERIC MOLD COUNTS IN TORONTO, CANADA

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FROM the period, Dec. 7, 1953, to Dec. 6, 1954, daily atmospheric mold counts were done at The Hospital for Sick Children, Toronto. No such study has ever been reported from this area.

TECHNIQUE

The counts were done by means of the standard sampling device manufactured by the Wilkens-Anderson Company of Chicago,¹ using standard microscope slides covered with a thin coating of soft petrolatum jelly (75 per cent U.S.P. petrolatum, 25 per cent U.S.P. mineral oil). This apparatus was placed on the roof of the hospital, which is eleven stories high, in a relatively unobstructed position, although a superstructure about thirty feet away caused slight obstruction from a northerly direction. There are no surrounding tall buildings which cause any obstruction. The slide was replaced daily at 11:15 A.M., and examined under a binocular microscope, without stain. The area of the cover slip, 4.4 sq. cm., was counted, but results were reduced to the number of mold granules per square centimeter for reporting.

In addition, a standard sized Petri dish containing modified Mehrlick's medium, as recommended by the American Academy of Allergy, was exposed for twelve minutes each morning at about 11:00 A.M. on an unobstructed window sill at the third-floor level of the hospital, the window having a western exposure on the east side of a wide thoroughfare running north and south. This culture was maintained at room temperature and examined about one week later. The molds were identified by macroscopic examination and by subculture and/or microscopic examination when necessary.

RESULTS

The results of the counts are shown in Figs. 1 and 2. The most important molds, numerically, are alternaria, hormodendrum, and yeasts, although smuts were quite prominent during July and August. The peak season for molds was from the middle of July to the middle of October. Practically none were found from the beginning of January to the middle of June.

Correlation of Counts With Skin Tests to Molds in the Toronto Area.—Although it is difficult to correlate clinical symptoms with atmospheric mold counts, both because most patients who show positive skin tests to molds react to

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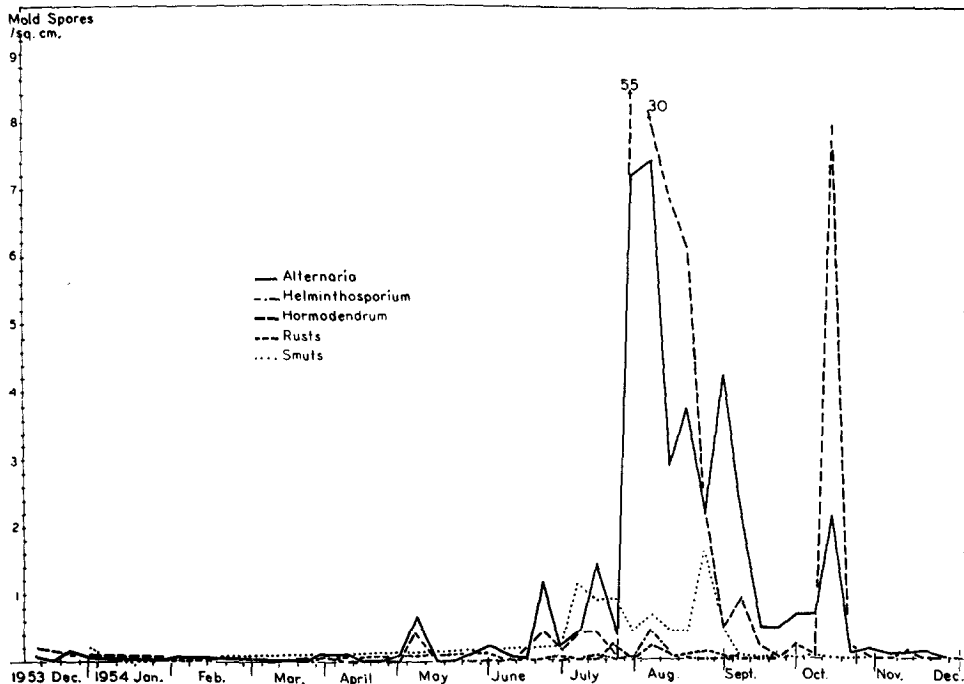


Fig. 1.—Total mold spore counts expressed as number of mold spores per square centimeter of exposed slide. The average daily count for each week is charted for purposes of simplification.

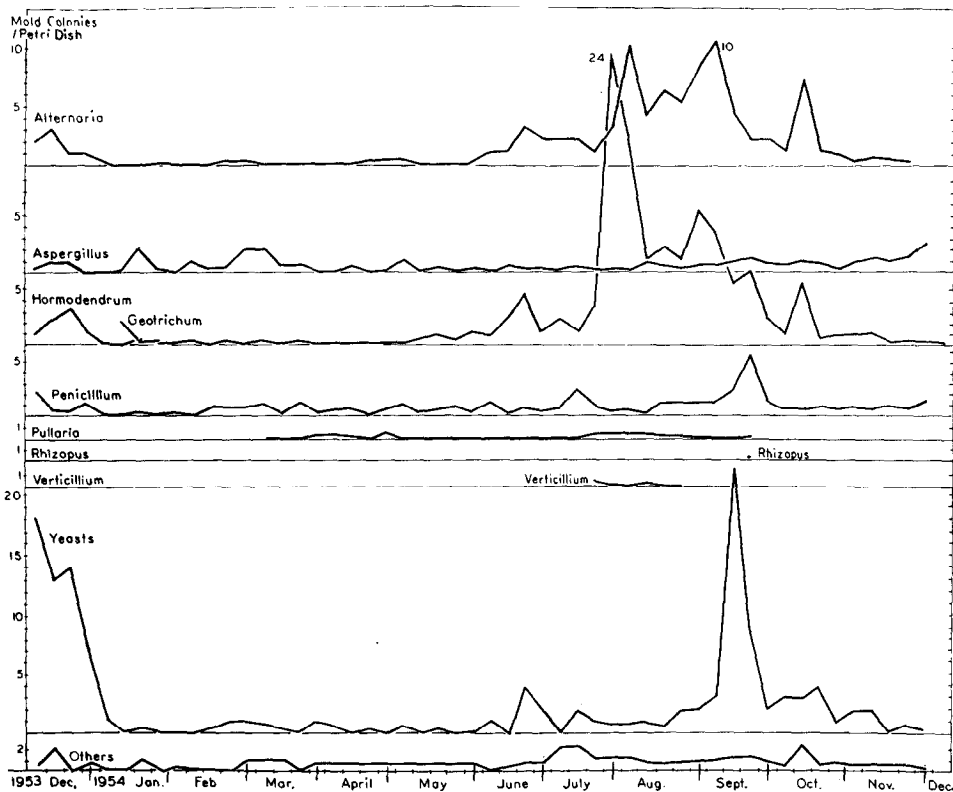


Fig. 2.—Total mold colonies per Petri dish. The average daily count for each week is charted for purposes of simplification.

many other substances also and because the peak mold counts occur during the pollen season, positive skin reactions to molds are very common in this area, especially to *alternaria*, *hormodendrum*, and yeasts, but also to *Aspergillus fumigatus*, *Penicillium notatum*, and *Monilia albicans*. Since we have had no experience with skin tests to the other molds found in this study or with rusts or smuts, no comment can be made on these allergens.

Correlation Between Mold Counts and Observations on the Weather.—An attempt was made to correlate the slide and plate mold counts with changes in the weather. Unlike the changes observed with pollens, there was no correlation between mold counts and a 10-degree drop of mean daily temperature, the mold counts rising on the colder days as frequently as they fell. Similarly, no correlation was found between the mold counts, on the one hand, and precipitation, average wind speed, or prevailing wind direction on the other, with one exception. This one exception occurred when hurricane Hazel struck Toronto. On this day, the mold counts fell to zero and remained negligible for a whole week. During this week, there was practically no additional precipitation and the average daily temperature was approximately 15 degrees lower than it had been prior to the hurricane.

SUMMARY

Daily mold counts, using both exposed slides and Petri dishes, from Dec. 7, 1953, to Dec. 6, 1954, in Toronto, Canada, are reported. The most important molds, numerically, are *alternaria*, *hormodendrum*, and yeasts, the peak season being from the middle of July to the middle of October. Smuts are quite prominent during July and August.

REFERENCE

1. Durham, O. C.: The Volumetric Incidence of Atmospheric Allergens. IV. A Proposed Standard Method of Gravity Sampling, Counting and Volumetric Interpolation of Results, *J. ALLERGY* 17: 79, 1946.