

原著論文

カビ発育から測定する実測カビ指数と
温湿度から計算する予測カビ指数の比較

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Comparison of a Measured Fungal Index determined using
Fungal Growth and a Computed Fungal Index based on
Temperature and Relative Humidity

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要 旨

カビ指数は生物的な気候パラメータで、好乾性カビ *Eurotium herbariorum* を封入した試験片を調査箇所に曝露し、その発育（すなわち調査環境に対するカビの応答）と曝露期間から計測するものである。カビ指数は調査箇所がどの程度カビが発育しやすい環境（気候）であるかを示す指数である。

鎌倉市の木造戸建住宅で駐車場軒下（外気）と東西の床下に温湿度記録計と上記試験片を吊り下げ、2003年に温湿度とカビ指数を測定した。温度と相対湿度は1時間ごとに自動計測し、カビ指数は上記試験片の曝露期間を1週間として毎週測定した。測定された温度と相対湿度からエクセルソフトの関数“INDEX”を使ってカビ指数を計算し、得られたカビ指数（予測カビ指数）と上記試験片を用いて測定したカビ指数（実測カビ指数）を比較した。予測カビ指数は実測カビ指数に近い値を示し、外気でも床下でも季節的な変動パターンはほぼ同じであった。

正確な温度と相対湿度のデータが得られれば、気候の履歴からカビ指数が計算でき、さらに、建築設計の段階で温湿度シミュレーションからカビ指数をシミュレーションすれば、カビ汚染のない快適な室内環境を創ることが可能になる。

Abstract

A fungal index is a biological climate-parameter. It is measured using the growth response of the xerophilic fungus *Eurotium herbariorum* sealed in a test piece, the fungal detector, exposed at the survey site and the period of exposure. The index represents the environmental (climate) capacity to allow fungal growth at the survey site.

Thermo-hygrometers and fungal detectors were hung in the roofed parking space (outdoors) and in two crawl spaces, east and west side, under the floor of a house in Kamakura, Japan. The temperature and relative humidity were measured at 1-hour intervals and the fungal index was measured every week (1-week exposure) at each survey site during 2003. Fungal indices at each site were computed from the temperature and relative humidity measured with the thermo-hygrometers. The Excel software “INDEX” was used for these computations. The computed fungal index values were compared with the measured fungal index values determined using the fungal detectors. The computed indices showed similar values to the measured indices, and the seasonal variation patterns for computed and measured indices were about the same both outdoors and in the crawl spaces.

We can compute the fungal index from the climatic history if we obtain accurate data for temperature and relative humidity. We can also simulate the fungal index using simulated temperature and relative humidity at the design stage before construction of buildings in order to create a comfortable indoor environment free from fungal contamination.

Key words: computed fungal index, fungal index, fungi, climate, relative humidity