

OCCURRENCE OF *PAECILOMYCES VARIOTI* ON STORED PAPER FEED BAGS,

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ABSTRACT

Paecilomyces varioti has been isolated from paper feed bags stored in a cool, moist basement warehouse. In Petri dish moist chambers, the mold grows rapidly with a starch-base glue as its sole culture medium but does not grow on glue to which 0.5% Dowcide A® (sodium-*o*-phenylphenate tetrahydrate) has been added. The bag manufacturer's addition of 0.5% (by weight) Dowcide A® to his glue has prevented subsequent mold infestations though storage conditions for the bags have remained the same.

INTRODUCTION

The author was recently contacted by a nationally-known manufacturer of bags who was experiencing a serious fungal infestation. Mold had developed in boxes of compressed paper feed bags during storage on pallets in a cool, moist basement warehouse. Feed manufacturers rejected the bags upon receipt fearing that the mold would spread into their feed.

The author was asked to isolate and identify the mold or molds responsible for the infestation. He was also asked to investigate the effectiveness of a starch-base glue containing fungicide as a possible control measure.

MATERIALS AND METHODS

The mold was isolated from contaminated bags, slide cultured, and identified as *Paecilomyces varioti* Bainier. Attempts were made to culture the fungus on paper and glue samples obtained from the manufacturer.

Paper samples were placed in Petri dishes lined with moist filter paper. These moist chambers were then autoclaved. Some sterilized paper samples were inoculated with conidia of *P. varioti* and incubated at 25° C; other samples served as controls.

Drops of the starch-base glue were placed on clean glass microscope slides. The slides were then placed in Petri dish moist chambers and autoclaved. Autoclaving converted the glue drops to hard beads. Some glue beads were inoculated with *P. varioti* conidia and incubated at 25° C while others served as controls. Glue samples containing 0.5% (by weight) Dowcide A® (sodium-*o*-phenylphenate tetrahydrate) were treated in the same manner.

RESULTS AND DISCUSSION

Fungal growth did not occur on moist chambered paper samples or in any of the controls. *P. varioti* rapidly grew over moist chambered glue samples but not on glue samples containing fungicide.

The bag manufacturer has purged his glue lines and pans with steam and has added 0.5% Dowcide A® to his glue cook. No new infestations have developed during the five months since these corrective measures were instituted even though the bags are being stored under similar conditions of temperature and moisture.

Late in this investigation, the author was informed that at least two other nationally-known bag manufacturers had experienced similar fungal infestations of starch-based glues. In both instances, a switch to glue containing fungicide had been effective in preventing future infestations. Neither of these previous infestations was reported in the literature. The author, however, has learned that the fungus involved was identified as *Paecilomyces* sp. in one instance and as *Penicillium* sp. in the other. Since *Penicillium* and *Paecilomyces* are often confused with one another, the possibility exists that both previous infestations were due to *Paecilomyces*.

Paecilomyces varioti is a commonly encountered saprophyte. This species has caused problems for other industries as part of the mycoflora of rubber (1) and leather (2) during storage. It has also been identified as an agent of systemic mycosis in dogs (3).

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LITERATURE CITED

- Dayaratne, W. C., and H. L. Munasinghe. 1971. Mould contamination of rubber. *Q. J. Rubber Res. Inst. Ceylon* 48:136-146.
- Lazar, V., and V. Bratulescu. 1971. Contributions to the study of the mycoflora of stored leathers. *Revue Roumaine d Biologie, Serie Botanique* 16(3):207-212.
- Patnaik, A. K., S. K. Liu, R. J. Wilkins, G. G. Johnson, and P. E. Seitz. 1972. Paecilomycosis in a dog. *Amer. Vet. Med. Assoc. J.* 161(7):806-813.