

Transformation of *Fomes annosus*—an Unwarranted Conclusion

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ABSTRACT

J. W. Koenigs (Phytopathology 59:1717-1721) found that isolates of *Fomes annosus*, after exposure to high concentrations of sodium borate were "culturally indistinguishable from *Peniophora gigantea*". This conclusion is not valid. On examining seven of his exposed cultures we found that they must have been contaminated by various species of hymenomycetes.

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Koenigs (2) tested growth and survival of *Fomes annosus* (Fr.) Karst. at high concentrations of sodium borate. In the abstract of his paper he states that "nonsporulating isolates recovered from some treatments produced clamp connections and/or oidia, and strongly resembled *Peniophora gigantea*". Though the survivors are in many cases morphologically very different from ordinary *F. annosus* cultures, Koenigs believes them to belong to this species. His paper does not seriously discuss the possibility of contamination.

On p. 1720, Koenigs describes the nonsporulating cultures and states:

"The recovery of these isolates may be of importance, because nonsporulating, oidial-forming fungi with or without clamp connections are culturally indistinguishable from *Peniophora gigantea* (Fries) Masee (12), a fungus which is currently used as an agent in the biological control of *F. annosus* (16). These isolates may also be of value in exploring factors affecting fungal morphology".

We expressed our doubt about such a transformation of *F. annosus* to Dr. Koenigs, and he kindly sent us his untreated isolates of *F. annosus* labeled 23, 128, and 133, and seven other cultures, labeled V 1, V 2, V 4, V 5, V 7, V 11, and V 12, that were isolated after treatment with sodium borate. We found the untreated isolates 23, 128, and 133 to be *F. annosus*. But none of the treated isolates received were *F. annosus*. We tried to identify the exposed cultures using the system of Nobles (4) and to induce fruiting (1), always comparing the exposed cultures with verified cultures of *F. annosus* and *Peniophora gigantea* ([Fr.] Fr.) Mass.

Cultures V 1, V 10, and V 12 may belong to one species. They are very different from *F. annosus* and also appear to be different from *P. gigantea*. V 10 fruited on tannic acid agar in a petri dish, and also on autoclaved spruce wood under aseptic conditions in a flask (Fig. 1-A, B). On spruce wood, the color of the hymenium was yellow-red yellow [10.0 YR] 6/8 (3). Each basidium carries four basidiospores ($1.8 - 2.3 \times 4.6 - 6.1 \mu\text{m}$) quite different from the basidiospores of *F. annosus*. The basidiospores are also somewhat narrower than the basidiospores of *P. gigantea*; and encrusted hyphae, typical for *P. gigantea*, are lacking.

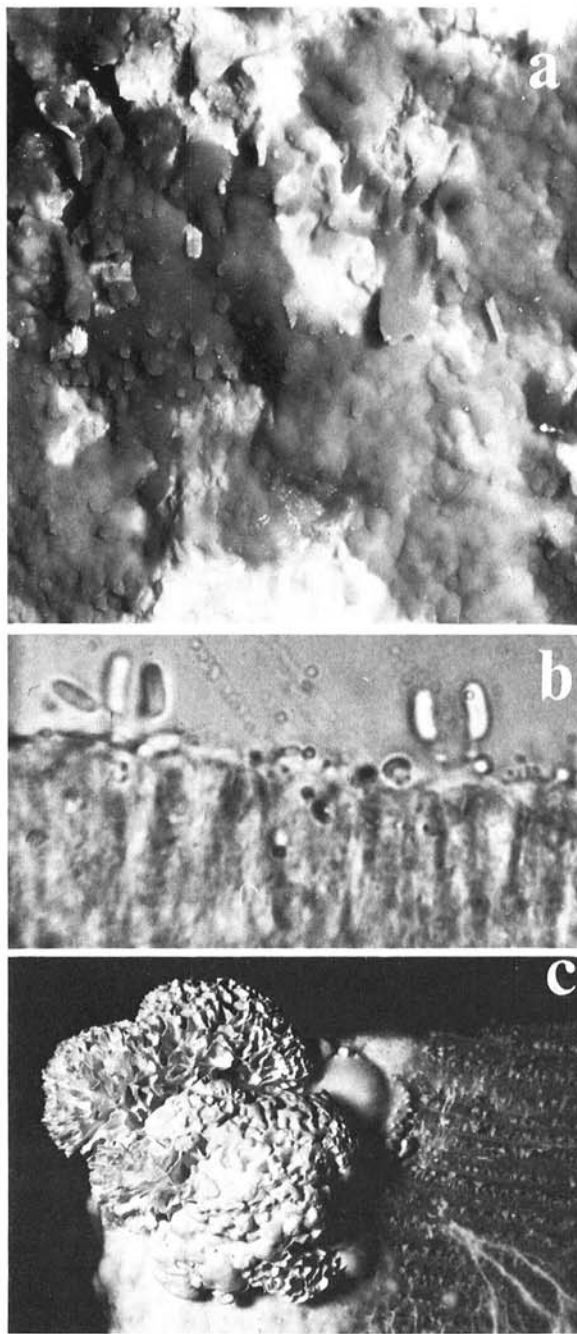


Fig. 1. Fructification of Koenigs' culture V 10. A) Brownish colored hymenium on white mycelial mat aseptically grown on autoclaved spruce wood in a 1-liter Erlenmeyer flask ($\times 3.5$); B) Section of the same hymenium with basidiospores ($\times 1300$); C) Koenigs' culture V 2. Sterile structures on a spruce wood block ($\times 1$).

V 2 is clearly different from both *F. annosus* and *P. gigantea*. A picture of sterile structures growing on a spruce wood block is shown in Fig. 1-C.

V 4, V 5, V 7, and V 11 belong to one, or maybe more

than one species which are not *F. annosus*. They all have oidia ($2 - 3.8 \times 3 - 12.5 \mu\text{m}$). We cannot exclude *P. gigantea*.

There is no reason to assume that *F. annosus* has changed so drastically as to take on the morphology of the isolates V 1, V 2, V 4, V 5, V 7, V 11, and V 12. Evidently there must have been contamination by fungi able to survive the high concentration of sodium borate.

LITERATURE CITED

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