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**THE DOUBTFUL IDENTITY OF FUNGUS No. 517**

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THE DOUBTFUL IDENTITY OF FUNGUS NO. 517<sup>1</sup>

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Among the cultures at the Madison, Wisconsin, branch of the Division of Forest Pathology is a No. 517, which has been called Fomes annosus Fr. This fungus has been widely used as an indicator in toxicity studies throughout the world. According to our records it was isolated by C. J. Humphrey from a sporophore of F. annosus secured from a mine timber in Pennsylvania in 1910. Plates 1 to 4 in U. S. Department of Agriculture Bulletin 227, "The Toxicity to Fungi of Various Oils and Salts, Particularly Those Used in Wood Preservation," published in 1915, give illustrations of the fungus which was given me in 1917. I have long realized that it did not seem to be a typical F. annosus culture. Dr. Cartwright<sup>3</sup> has questioned the identification of this culture, suggesting that it is Polyporus tulipiferus (Schw.) Overh., and hence results obtained with this fungus cannot therefore be compared with results obtained with cultures of F. annosus.

I have pointed out repeatedly the necessity of using the same culture in toxicity tests if results are to be comparable.<sup>4, 2</sup> In speaking of this No. 517, I have said that it is an excellent indicator of the effect of the preservative on growth and it has been used throughout our tests to serve just this function.

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<sup>1</sup>Presented before the 33rd annual meeting of the American Wood-Preservers' Association, New Orleans, La., January 26-28, 1937.

<sup>2</sup>In cooperation with the Forest Products Laboratory, Madison, Wis.

<sup>3</sup>Report of the Forest Products Research Board for the Year 1935, p. 33, 1936.

<sup>4</sup>Richards, C. A. Methods of testing the relative toxicity of wood preservatives. Proceedings of the American Wood-Preservers' Association, pp. 127-135. 1923.

<sup>5</sup>Richards, C. A. The comparative resistance of 18 species of wood-destroying fungi to zinc chloride. Proceedings of the American Wood-Preservers' Association, pp. 18-22. 1925.

In a paper by Henry Schmitz and others<sup>6</sup> we find, "Different species of wood-destroying fungi vary greatly in their resistance to toxic agents. Even within a given species of wood-destroying fungus, different physiological strains or races exist which also show considerable variation in their resistance to the same toxic agent. It is imperative, therefore, if the results of toxicity tests obtained by different investigators are to be comparable, that cultures of the same test fungus be used."

Recently we have compared No. 517, Polyporus tulipiferus No. 691, and typical Fomes annosus cultures.

No. 517 and No. 691 both changed media to which brom cresol purple was added from neutral to acid the first 5 to 8 days, then back to neutral or slightly basic. However, when a sodium caseinate base was used, No. 691 returned to neutral at the end of 70 days while No. 517 remained acid.

No. 517 differs from No. 691 in that it bleaches malt agar until it is nearly colorless. Otherwise they have similar growth reactions, which differ from those of typical Fomes annosus cultures. The former produce cystidia while the latter does not. Those produced by No. 517 are smaller than reported for Polyporus tulipiferus. The size of the basidiospores in No. 517 agree with those of P. tulipiferus, but are larger than is reported for F. annosus.

No. 517 and No. 691 grew somewhat more rapidly at 35° C. than they did at 25° C., while none of the typical Fomes annosus cultures grew at all at 35° C. According to Humphrey and Siggers<sup>7</sup> the optimum and inhibiting temperatures for a European strain of Fomes annosus were 24° and 32° C., while for their so-called American strain of F. annosus (No. 517) they were 34° and 44° C.

Cultures of both Nos. 517 and 691 were killed by the addition of 0.25 percent sodium fluoride, as was one typical strain of Fomes annosus. Another strain of F. annosus was only inhibited at that concentration but was killed at 0.3 percent.

Since the organism No. 517 has not produced typical sporophores in culture, it is not possible to definitely identify it. Under the circumstances I suggest that for the present, at least, it be referred to simply as No. 517. While it is unfortunate that the identity of the organism is

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<sup>6</sup>Schmitz, H. and others. A suggested toximetric method for wood preservatives. *Indus. & Engin. Chem., Analytical Ed.*, 2:361, Oct. 15, 1930.

<sup>7</sup>Humphrey, C. J., and Siggers, P. V. Temperature relations of wood-destroying fungi. *Jour. Agr. Research* 47(12):997-1008, Dec. 15, 1933.

uncertain, the usefulness of the culture as an indicator in toxicity work has not been affected. Likewise, past results in toxicity work at the Forest Products Laboratory are in no way affected, since the fungus No. 517 has always been used and not just any strain of Fomes annosus.