

1941

Observations of the Leaves of Arborescent Lycopods From the Pennsylvanian Rocks of Iowa (Abstract)

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Recommended Citation

Wilson, L. R. and Tillepaugh, Iola (1941) "Observations of the Leaves of Arborescent Lycopods From the Pennsylvanian Rocks of Iowa (Abstract)," *Proceedings of the Iowa Academy of Science*, 48(1), 197-197. Available at: <https://scholarworks.uni.edu/pias/vol48/iss1/34>

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THE RELATIONSHIP OF SOME BACTERIAL PLANT
PATHOGENS TO THE COLIFORM BACTERIA

(ABSTRACT)

E. L. WALDEE

Cultural and biochemical tests commonly used in the characterization of the coliform bacteria have been applied to 12 species of bacterial plant pathogens including *Bacillus amylovorus*, *B. tracheiphilus*, *B. salicis*, *B. carotovorus*, *B. phytophthorus*, *B. atro-septicus*, *B. aroideae*, *B. melonis*, *B. lathyri*, *B. annas*, *Bacterium dissolvens* and *Bact. stewardii*. These were studies comparatively with type cultures of *Escherichia coli*, *E. freundii*, *Aerobacter aerogenes*, *A. cloacae*, *Proteus vulgaris* and *Serratia marcescens*. Only one species, *Bacterium dissolvens*, was found to belong to the coliform bacteria. On the basis of these studies it should be considered a member of the genus *Aerobacter*. The soft rot bacteria, *Bacillus carotovorus*, *B. phytophthorus*, *B. atro-septicus*, *B. aroideae* and *B. melonis*, while closely related, were found to be distinct from the coliform bacteria in a number of important respects. They appeared to show a remarkably close relationship to *Serratia marcescens*. *Bacillus amylovorus*, *B. tracheiphilus* and *B. salicis* have been previously shown to constitute the genus *Erwinia* and to be only remotely related to the coliform bacteria. On the basis of this study *Bacterium stewardii* appeared to be closely related to the species of *Erwinia*, but its exact relationship is still a matter of doubt. *Bacillus lathyri* and *B. annas* appeared to be more closely related to *Serratia marcescens* than to the coliform bacteria.

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OBSERVATIONS ON THE LEAVES OF ARBORESCENT
LYCOPODS FROM THE PENNSYLVANIAN ROCKS
OF IOWA (ABSTRACT)

L. R. WILSON AND IOLA TILLEPAUGH

In the coal balls of the Des Moines Series (Pennsylvanian System) many arborescent Lycopod leaves are preserved. A number of these have been investigated anatomically in serial nitrocellulose peels and in thin rock sections. The anatomy and abundance are discussed in the paper.

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