NOTE

Fluorescence of *Myxococcus stipitatus*

J. R. LAMPKY AND E. R. BROCKMAN

Department of Biology, Central Michigan University, Mt. Pleasant, Michigan 48859

The exposure of *Myxococcus stipitatus* to long-wave ultraviolet light results in a yellowish-green fluorescence. This character will aid in the identification of this species.

In *Bergey's Manual of Determinative Bacteriology* (1), the myxobacteria are grouped into eight genera. One of these, *Myxococcus*, is characterized by tapered vegetative cells and spherical or oval microcysts. Even with currently accepted taxonomic criteria, it is sometimes quite difficult to positively identify certain species and/or strains of this genus due to atypical growth or unusual fruiting body formation.

We have observed that *Myxococcus virescens* has a greenish, diffusible pigment. The visual appearance of this pigment resembled that of *Pseudomonas aeruginosa*, and we considered that it might fluoresce when exposed to ultraviolet (UV) light. Mature fruiting bodies of the myxobacter were subjected to UV light in a ChromatoVue cabinet (model C-5 from Ultraviolet Products, Inc., San Gabriel, Calif.); the fruiting bodies did not fluoresce. We then tested fruiting forms of *Myxococcus fulvus*, *Myxococcus xanthus*, *Myxococcus stipitatus*, *Myxococcus coraloides*, and *Myxococcus macrosporus*. Of these, *M. stipitatus* fluoresced yellow-green, whereas the others did not. Fluorescence occurred under both short (254 nm) and long (320 to 380 nm) -wave UV light, but the strongest fluorescence was with longer wavelengths.

We then tested as many strains of *Myxococcus* species as were currently available at Central Michigan University (Table 1). The strains were from soil sample isolation plates, pure laboratory cultures, and three were from dried specimens dating back to 1970. All specimens of *M. stipitatus*, fresh and dried, fluoresced; the dried specimens were not as strongly fluorescent as were the fresh specimens.

On plates having both vegetative growth and fruiting bodies, the vegetative portions were weakly fluorescent. This would indicate that

TABLE 1. Fluorescent activity of *Myxococcus* species

Species	No fluorescence	Fluorescence
<i>M. fulvus</i>	127 ^a	0
<i>M. virescens</i>	6	0
<i>M. xanthus</i>	145	0
<i>M. stipitatus</i>	0	21
<i>M. coraloides</i>	220	0
<i>M. macrosporus</i>	3	0

^a Number of strains tested.

the fluorescent substance was produced by the vegetative cells.

Confusion in the classification of *M. stipitatus* sometimes occurs when strains fail to form stalked fruiting bodies. *M. stipitatus* fruiting bodies, stalked or sessile, show fluorescence under UV light. This test, then, adds to the present characteristics of *M. stipitatus*. It enables one to identify a suspected isolate quickly and positively.

In addition to the strains of *Myxococcus* species examined, strains of species of five other myxobacterial genera were also exposed to UV light. These species were *Archangium gephyra*, *Cystobacter fuscus*, *Stigmatella erecta*, *Polyangium fumosum*, *Polyangium cellulosum*, *Chondromyces crocatus*, and *Chondromyces pediculatus*. None of these species exhibited fluorescence.

REPRINT REQUESTS

Address reprint requests to: Dr. James Lampky, Dept. of Biology, Central Michigan University, Mt. Pleasant, MI 48859.

LITERATURE CITED

1. McCurdy, H. D. 1974. The fruiting myxobacteria, p. 76-127. In R. E. Buchanan and N. E. Gibbons (ed.), *Bergey's manual of determinative bacteriology*, 8th ed. The Williams & Wilkins Co., Baltimore.