

BRIEF NOTE

A SURVEY OF *PILOBOLUS* FROM LAKE COUNTY, OHIO¹

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The coprophilous fungus, *Pilobolus* has been reported growing on the dung of herbivores from many different parts of the world and in several states, including Ohio's neighboring states of Michigan (Bessey 1946) and Pennsylvania (Sumstine 1910). Whereas there are herbarium records of *Pilobolus* from Ohio (Wm. Bridge Cooke, pers. comm.), but no published records exist. Thus, a survey was undertaken to determine the relative frequency of *Pilobolus* on the dung of horses, ponies, beef and dairy cattle, and sheep in Lake Co., Ohio.

Forty collections of dung were made from six sites in Lake Co., Ohio. In each instance fresh dung was collected and transported to the laboratory in sterile plastic bags where it was transferred to sterile deep petri dishes and incubated at room temperature under cool white fluorescent lights with an intensity of 320 fc with 12 h alternating light and dark periods. After a normal incubation period of three to five days, sporangiophores with sporangia appeared. As sporangia aimed toward the light were discharged, they struck and adhered to the lids of the petri dishes. These sporangia were collected and used for identification and as inoculum to prepare reserve and working cultures.

Of the 40 collections, 15 yielded isolates of *Pilobolus*, from these we were able to culture 10. These isolates were maintained on Bovung agar (Hesseltine et al. 1953) throughout the study. Each isolate was re-

tained for several weeks and examined for contamination and variability. Regular transfers provided a constant source of fresh sporangia for study.

The 10 isolates recovered were in three species: *P. crystallinus* (three isolates), *P. kleinii* (two isolates), and *P. longipes* (five isolates).

Pilobolus crystallinus (Wiggers) Tode (1784): Fries (1823).

Pilobolus crystallinus sporangiophores develop in three to four days and are $1753.8 \pm 145.0 \mu\text{m}$ long, and $83.9 \pm 12.7 \mu\text{m}$ in diameter. They are clear to pale yellow in color. Trophocysts develop submerged in the substratum and are $372.2 \pm 115.0 \mu\text{m}$ long by $227.2 \pm 30.9 \mu\text{m}$ wide. Spores are pale yellow ellipsoids which measure $10.18 \pm 0.68 \mu\text{m}$ in length by $6.11 \pm 0.67 \mu\text{m}$ in width producing a length to width ratio of 1.67. Sporangia are covered with a dark, cutanized wall and measure $169.6 \pm 22.3 \mu\text{m}$ by $280.7 \pm 28.1 \mu\text{m}$. The subsporangial swelling measures 535.8 ± 56.8 by $393.9 \pm 28.5 \mu\text{m}$.

Pilobolus crystallinus was isolated in Lake Co. during March and April from the dung of horses and cows.

Pilobolus kleinii van Tieghem (1876).

Pilobolus kleinii sporangiophores measure $1388.2 \pm 384.0 \mu\text{m}$ in length and $98.3 \pm 13.6 \mu\text{m}$ in diameter. They arise from dark yellow turnip-shaped trophocysts measuring 408.6 ± 160.0 by $234.2 \pm 47.0 \mu\text{m}$. They are often partially submerged within the substratum. Sporangia are dark, smooth, and cutanized. They measure 161.5 ± 34.4 by $253.6 \pm$

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42.8 μm and set atop subsporangial swellings 470.5 ± 62.4 by 345.9 ± 47.0 μm . The columella are conical and extend deeply into the sporangia. Sporangiospores are yellow and elliptical, measuring 13.20 ± 0.70 μm in length by 9.21 ± 0.15 μm in width with a length to width ratio of 1.43.

Pilobolus kleinii was isolated in Lake Co. during March and April from the dung of cows.

Pilobolus longipes van Tieghem (1876).

Pilobolus longipes sporangiophores are 1773.2 ± 193.0 μm long and 133.6 ± 4.2 μm wide. Sporangiohores growing from freshly collected dung are much longer than those from isolates transferred to bovine or other media. They develop from large, elongated trophocysts 1000.0 ± 130.1 μm long by 215.8 ± 18.4 μm wide. The sporangia are smooth, dark, cutanized, and measure 220.8 ± 34.8 by 330.0 ± 43.7 μm . Subsporangial swellings are ellipsoidal and

measure 738.1 ± 32.5 by 569.6 ± 21.8 μm . Sporangiospores are subglobose to globose, dark yellow to orange in color and measure 11.78 ± 0.79 by 10.49 ± 0.60 μm with a length to width ratio of 1.12.

Pilobolus longipes was isolated in Lake Co. during March and April from the dung of horses and ponies.

No isolates of *Pilobolus* grew from samples of sheep dung.

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