

THE FEEDING OF TETRAHYMENA PYRIFORMIS IN THE
PRESENCE OF PARTICLES

by 1264

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B. S., Marietta College, 1966

A THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Division of Biology

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1970

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LD
2668
T4
1970
P472

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INTRODUCTION

Protozoans, as a group of microorganisms, are usually not considered as important as bacteria or fungi in the environment because of their small numbers. The variety of protozoans, classed according to their locomotion, feed upon various materials, ranging from soluble materials to the particulate matter of bacteria, algae, and other protozoans. They are found in water, soil, and at various interphases of the two; some are parasitic while others are facultatively autotrophic. Because of their universality, the protozoans encounter a complex natural environment, organic and inorganic. Other species of protozoans as well as bacteria, algae, nematodes, and rotifers are present in addition to the inanimate soil, clay, and primary minerals.

Tetrahymena pyriformis is a protozoan which is found in most fresh water lakes and because of its ubiquitous character and ease of culturing was chosen to represent the ciliates and their behavior under the experimental conditions used. Ciliates have been implicated in clearing sludge tanks of bacteria and also in the self purification of lakes. The utilization of T. pyriformis and its growth rate as the parameter for the determination of the effect of particles has the advantages of convenience, ease of duplication, and ease of handling. This specific organism has been used extensively as an experimental organism in nutritional studies. Kidder (1941) used this microorganism for studies involving a defined medium for growth, and for studies with bacteria as food sources. Seaman (1961) used this ciliate for the study of phagocytosis and determined that insufficient food entered by the mouth for maintenance of the organism; he measured the formation of the food vacuole. Mueller (1965) observed the uptake of latex particles without a selective mechanism.