



Illinois Wesleyan University
Digital Commons @ IWU

John Wesley Powell Student Research
Conference

2017, 28th Annual JWP Conference

Apr 8th, 9:00 AM - 10:00 AM

Brachionus Plicatilis Ability to Ingest, Digest, and Assimilate Dissolved Organic Matter

Brianna Miulli
Illinois Wesleyan University

William Jaeckle, Faculty Advisor
Illinois Wesleyan University

Follow this and additional works at: <https://digitalcommons.iwu.edu/jwprc>



Part of the [Biology Commons](#)

Miulli, Brianna and Jaeckle, Faculty Advisor, William, "Brachionus Plicatilis Ability to Ingest, Digest, and Assimilate Dissolved Organic Matter" (2017). *John Wesley Powell Student Research Conference*. 3.

<https://digitalcommons.iwu.edu/jwprc/2017/posters/3>

This Event is protected by copyright and/or related rights. It has been brought to you by Digital Commons @ IWU with permission from the rights-holder(s). You are free to use this material in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/ or on the work itself. This material has been accepted for inclusion by faculty at The Ames Library at Illinois Wesleyan University. For more information, please contact digitalcommons@iwu.edu.

©Copyright is owned by the author of this document.

Poster Presentation P13

***BRACHIONUS PLICATILIS* ABILITY TO INGEST, DIGEST AND
ASSIMILATE DISSOLVED ORGANIC MATTER**

Brianna Miulli and William Jaeckle*

Biology Department, Illinois Wesleyan University

Brachionus plicatilis is a marine rotifer that feeds on particles ranging from ~1-20 μm in size. The abundance of such particulate organic materials in marine environments is exceeded by the amount dissolved organic materials (DOM) by a factor of ten. We tested the hypothesis that *B. plicatilis* can use DOM as food by investigating their ability to consume iron-containing molecules from seawater. Rotifers were incubated for five hours in filtered seawater (0.2 μm pore size, FSW) containing 1 mg / mL of an iron-containing protein ferritin, an iron-containing polysaccharide iron dextran (ID), and ferrous gluconate (FG); FSW acted as an experimental control. The presence of iron atoms in rotifers was detected after a one hour incubation in a 3:2 mixture of 1% potassium ferrocyanide and 2% hydrochloric acid; ferrocyanide ions react with iron atoms to form an insoluble product called Prussian Blue (PB). PB was present in the lumen of the digestive system of rotifers exposed to all iron-containing molecules; controls had notably lower levels of PB in their digestive systems. Stomach cells of rotifers incubated in ferritin and FG, but not ID or controls, contained PB as a uniformly distributed blue color and as discrete spots. These data reveal that some DOM, present within ingested water, can be absorbed by the cells of the digestive system of *B. plicatilis* and represent a potential source of food for rotifers.