

# ELECTRON MICROSCOPY UNIT

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## WORK OF THE UNIT

**R**esearch, teaching, assisting Scientists, Graduate, Undergraduate, and High School students were the main areas on which the Electron Microscopy Unit focused during the 2009/2010 academic year. Combined, the various clients received results from and understanding of the operations and uses of Transmission Electron Microscopy (TEM), Scanning Electron Microscopy (SEM), Optical Microscopy (OM) and Macro-Photography (MP). Assistance in setting up of experimental apparatus and repair of equipment were carried out in a few cases. Table 1 summarizes the main specimens investigated and services provided.



**Table1.** Specimens investigated and services provided during the academic year 2009/2010.

Specimen	Technique	Institution
Ackee waste material	OM	Dept. of Life Sciences
Fish ( <i>Gambusia affinis</i> )	MP	Dept. of Life Sciences
Fungi – various types	OM	Dept. of Life Sciences - three different researchers
Human blood and tongue	OM	Dept. of Physics
Human hair	OM	Dept. of Physics
Pinned Moths	MP	Dept. of Life Sciences
Plankton	OM	Dept. of Chemistry
Pollen - Pimento	OM	Dept. of Life Sciences
Rat colon	OM	Basic Med. Sci. (Pharmacology)

Rat knee joints	OM	Basic Med. Sci. (Pharmacology)
Repairs to microscopes	OM	Basic Med. Sci. (Anatomy)
Repairs to microscopes	OM	St. Hugh's High School
Rock sections	OM	Dept. of Geog. & Geol. - eight different students
Sugar cane leaf rust	OM	Sugar Industry Research Institute
Tissue culture in plants	OM	Biotechnology Centre

Lectures and/or laboratory sessions were conducted in Electron Microscopy, OM and Digital Imaging in the undergraduate **Virology** course “BL38A” and the graduate course **Research Methods for Biologists** “BL60E” – both from the Department of Life Sciences, as well as in the graduate course **Research Methods** “C60M”, from the Department of Chemistry.

Contributions to the activities of Research Day included Exhibits, Demonstrations and Posters. Dr Wolf acted as ‘ad hoc’ referee for the journal *Acta Entomologica Musei Nationalis Pragae* and delivered a lecture on “Digital Photography” to the Natural History Society of Jamaica.

### Research in Progress

Gamete structure and development in insects, using various microscopic techniques. Collaborations continue with Zoologists from the University of Salzburg (Austria) and Wittenberg College (USA) on *Ciliates in tank bromeliads* and *Kinetics of spermatogenesis in lizards*, respectively.

### Refereed Publications

- \* Pepple, D., Richards, A., Lowe, D., **Reid, W.**, Younger, N. & Williams, L. (2010). In vitro erythrocytic membrane effects of dibenzyl trisulfide, a secondary metabolite of *Petiveria alliacea*. Available online July 11, 2010 from *Fitoterapia*:  
[http://www.sciencedirect.com/science?\\_ob=ArticleURL&\\_u di=B6VSC-50H7D59-1&\\_user=7232977&\\_coverDate=07%2F11%2F2010&\\_rdoc=1&\\_fmt=high&\\_orig=search&\\_origin=search&\\_sort=d&\\_docanchor=&\\_view=c&\\_acct=C0000600](http://www.sciencedirect.com/science?_ob=ArticleURL&_u di=B6VSC-50H7D59-1&_user=7232977&_coverDate=07%2F11%2F2010&_rdoc=1&_fmt=high&_orig=search&_origin=search&_sort=d&_docanchor=&_view=c&_acct=C0000600)

- \* Foissner, W. Blake, N., **Wolf, K.W.**, Breiner, H-W., & Stoeck, T. (2010). Morphological and molecular characterization of some peritrichs (Ciliophora: Peritrichida) from tank bromeliads, including two new genera: *Orborhabdostyla* and *Vorticellides*. *Acta Protozool.*, 48: 291-319.

### Non-Refereed Publications

- \* **Wolf, K.W.**, and Soppa, J. (2010). Nucleinsäuren, Chromatin und Chromosomen. In Munk, K. (Ed.), *Taschenlebrbuch Biologie Genetik* (pp. 1-49). Stuttgart: Georg Thieme Verlag.
- \* **Wolf, K.W.** (2010). Meiose. In Munk, K. (Ed.), *Taschenlebrbuch Biologie Genetik* (pp. 229-253). Stuttgart: Georg Thieme Verlag.
- \* **Wolf, K.W.** (2010). Formalgenetik. In Munk, K. (Ed.), *Taschenlebrbuch Biologie Genetik* (pp. 254-294). Stuttgart: Georg Thieme Verlag.
- \* **Wolf, K.W.** (2010). Geschlechtsbestimmung. In Munk, K. (Ed.), *Taschenlebrbuch Biologie Genetik* (pp. 295-315). Stuttgart: Georg Thieme Verlag.
- \* **Wolf, K.W.** (2010). Geological wonders lie waiting to be discovered. In A. Ali (Ed.), *Jamaica Absolutely* (pp. 162-165). Great Britain: Hansib Publications.

With a staff complement of two, the per capita publication = 1.

### Targets

The targets for the Unit are to

- continue the core function of assistance to researchers and exposure of interest groups to the benefits and techniques of electron microscopy and
- continue involvement in research and teaching.