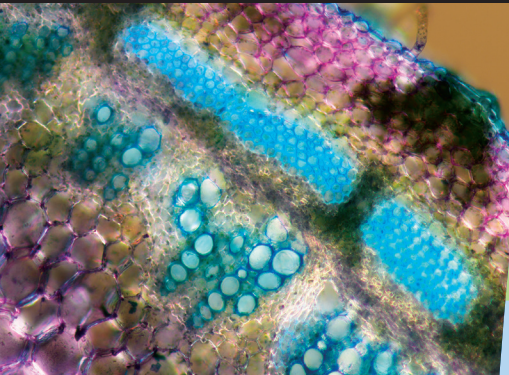


THE AMERICAN BIOLOGY TEACHER



About Our Cover

This image shows a stem tissue cross section of stevia (*Stevia rebaudiana*) stained with toluidine blue. Viewing cross sections of plant tissue under a microscope, especially with the aid of stains, offers a visually engaging way to teach plant anatomy. By adding scale bars to microscopy images, students are able to measure structures and quantify observations. Microscopy activities can be conducted with any non-woody plant, but unique compounds within stevia stimulate further classroom discussion.

Stevia leaves contain glycosides extracted for use as non-nutritive sweeteners. Glycosides can be 300 times sweeter than sucrose, making the leaves quite sweet when bitten. What are you waiting for? Pull off a leaf to taste and use the stem to visualize plant anatomy.

This photo was taken by Maximo Larkin, a law student at the University of North Carolina at Chapel Hill, using a 10× objective lens under a Nikon Eclipse Ti-E inverted light microscope and mounted Nikon DS-Ri2 camera. Maximo would like to thank Drs. David Shew and Alyssa Koehler for introducing him to stevia and for his undergraduate experiences in plant pathology at NC State University.

Contents

Feature Article

- A College–High School Collaboration to Support Authentic Microbiology Research**
Implementing important partnerships between secondary schools and academic institutions to successfully introduce research to younger students
Joan Petersen, Patrick Chan 201

Research on Learning

- Insect World: Game-Based Learning as a Strategy for Teaching Entomology**
Encouraging creativity and healthy competition while using an integrative, dynamic, and non-traditional teaching mode
Lirio Cosme Jr., Leonardo M. Turchen, Raul Narciso C. Guedes 210
- Attitudes toward Plants: Comparing the Impact of Instruction through Writing & through a Botanical Garden Trip**
Supporting and nurturing students' interest and positive attitudes toward plants
Funda Gül Iri, Emine Çil 218

Inquiry & Investigation

- Hot- or Cold-Blooded? A Laboratory Activity That Uses Accessible Technology to Investigate Thermoregulation in Animals**
Enhancing student learning while reinforcing application of the scientific method through a visual-learning, inquiry-based activity
Shem D. Unger, Mark A. Rollins, Christy M. Thompson 227
- FutureForest: Promoting Biodiversity Literacy by Implementing Citizen Science in the Classroom**
Using the forest ecosystem to illustrate the relations between economic, ecological, and social aspects of biodiversity
Jennifer Schneiderhan-Opel, Franz X. Bogner 234
- Forest Ecology beyond the Growing Season: Surveys of Fallen Leaves & Learning about Ecological Interactions**
Helping students gain valuable quantitative literacy skills by entering data into an online worksheet and performing various calculations and data analysis techniques
Evan Lampert 241
- Taking Temperature with Leaves: A Semester-Long Structured-Inquiry Research Investigation for Undergraduate Plant Biology**
Integrating key elements of inquiry and discovery while providing a structured approach to gaining research skills
Paige E. Copenhagen-Parry 247

RECOMMENDED
FOR AP Biology

BioClub
RECOMMENDATION

Tips, Tricks & Techniques

- Under the Scope: Microscopy Techniques to Visualize Plant Anatomy & Measure Structures**
Helping students to develop skills preparing specimens for visualization and to gain experience using a microscope
Alyssa M. Koehler, Maximo T. Larkin, H. David Shew 257
Available online at <https://www.nabt.org/ABT-Online-Current-Issue>
- Effective Techniques for the Care, Reproduction & Utilization of the Terrestrial Isopod *Porcellio scaber* in Your Science Classroom**
*Instructions for setting up a simple, low-maintenance, and inexpensive classroom enclosure as well as examples of effective, hands-on classroom activities utilizing *P. scaber**
Ron Wagler 266

Departments

- Guest Commentary • *Recognizing Personal Challenges to Emerge as a Stronger Teacher* • Kristy L. Danie 197
- The ABT BioMystery 198
- Book Reviews • Amanda L. Glaze-Crampes, Department Editor 270
- Classroom Materials & Media Reviews • Jeffrey D. Sack, Department Editor 272