

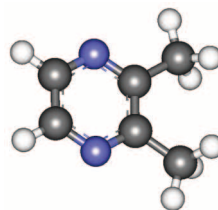
Molecular Models of Compounds in Maple Syrup

October Featured Molecules

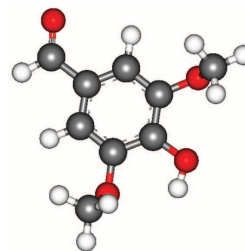
This month's issue of *J. Chem. Educ.* includes articles by David Ball dealing with the chemical composition of honey (1) and maple syrup (2). The JCE Featured Molecules for this month are drawn from those papers. In prior months we have included sucrose, glucose, and fructose (3), and all of the naturally occurring amino acids (4) in the molecule collection. This month we add the molecules identified in Table 4 of ref 2 as probable contributors to the taste of maple syrup. This group of molecules could serve easily as a starting point for a variety of student activities in the area of taste. Students in non-majors courses could be asked to identify structural similarities and differences among the various molecules and could be introduced to functional groups. Students could look for other foods in which some of these molecules are found, and could begin to develop a list of molecules contributing to flavor. In the penultimate paragraph of the maple syrup paper there is a list of substances used as flavoring agents in artificial "maple" syrup. What molecules are in fenugreek and lovage that might be important in flavoring? What are the structures of the other molecules in that paragraph and what, if any, structural features do they have in common with the featured molecules? Students in organic or biochemistry courses could begin to explore the chemistry of taste in more detail. Good starting points for this work are *The Chemistry of Taste: Mechanisms, Behaviors, and Mimics* by Peter Given and Dulce Paredes (5) and the *Chemical and Engineering News* Web site (6), which includes a number of articles on this subject.

Students can examine the structures of compounds in maple syrup in Jmol or Chime, along with other molecules in the collection, at the JCE Digital Library Web site:

<http://www.JCE.DivCHED.org/JCEWWW/Features/MonthlyMolecules/2007/Oct/>



2,3-dimethylpyrazine



syringaldehyde

Literature Cited

1. Ball, D. W. *J. Chem. Educ.* **2007**, *84*, 1643–1646.
2. Ball, D. W. *J. Chem. Educ.* **2007**, *84*, 1647–1650.
3. JCE Featured Molecules April 2007; <http://www.jce.divched.org/JCEWWW/Features/MonthlyMolecules/2007/Apr/index.html> (accessed Aug 2007).
4. JCE Featured Molecules July 2006; <http://www.jce.divched.org/JCEWWW/Features/MonthlyMolecules/2006/Jul/index.html> (accessed Aug 2007).
5. *The Chemistry of Taste: Mechanisms, Behaviors, and Mimics*; Given, P., Paredes, D., Eds.; ACS Symposium Series 825; American Chemical Society: Washington, DC, 2002.
6. Chemical & Engineering News; <http://pubs.acs.org/cen/> (accessed Aug 2007).