Featured Molecules

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Coumarin, Naphthalene, and Additional Polycyclic Aromatic Hydrocarbons

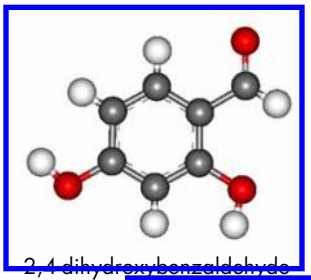
June Featured Molecules

The molecules of the month this month are drawn from two papers. The first, "One-Pot Synthesis of 7-hydroxy-3-carboxycoumarin in Water", is a Green Chemistry feature by Fringuelli, Piermatti, and Pizzo (pages 874–876). The three-dimensional versions of the molecules in the synthesis of the coumarin derivative are directly tied to the reaction scheme included in the paper, opening the possibility of showing large numbers of complex synthetic pathways in this manner.

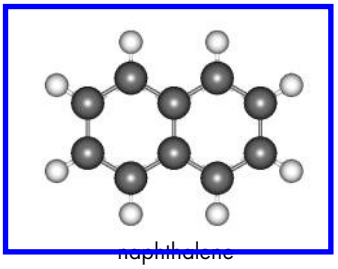
The second paper is "Determining the Carbon–Carbon Distance in an Organic Molecule with a Ruler" by Simoni, Tubino, and Ricchi (pages 847–849). This article describes an experiment to determine the size of a naphthalene molecule, using an extension of classic experiments for determining molecular size and Avogadro's number. While the structure of naphthalene will come as no surprise to most students, the molecule collection also includes additional polycyclic aromatic hydrocarbons (PAHs) that can be used to introduce students to the environmental and health issues related to these molecules.

Fully manipulable (Chime) versions of these and other molecules are available at the *Only@JCE Online* Web site:

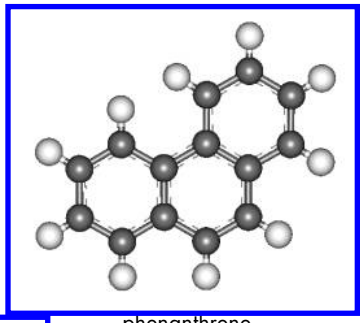
http://www.JCE.DivCHED.org/JCEWWW/Features/MonthlyMolecules/2004/Jun/



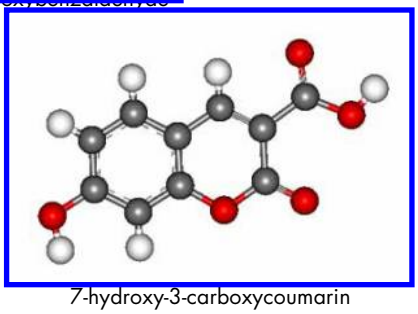
2,4-dihydroxybenzaldehyde



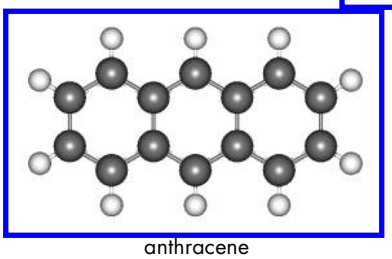
naphthalene



phenanthrene



7-hydroxy-3-carboxycoumarin



anthracene