

Ways to Represent Organic Molecules

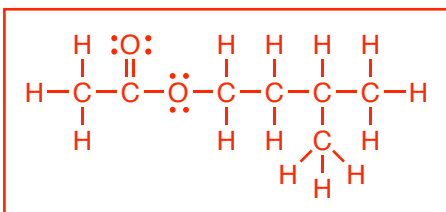
Organic molecules may be represented in a variety of ways. Each gives different kinds of information. The following examples show ways to represent the molecule that gives bananas their distinctive odor and taste.

Molecular formula - gives the number of atoms of each element in the molecule (the number of carbon atoms is always first, then hydrogen, then the rest in alphabetical order)



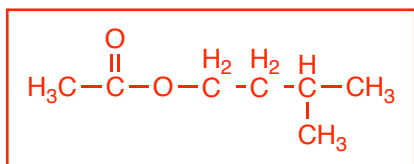
Weakness: other compounds may also have this formula.

Lewis structure - shows all atoms, bonds, unbonded electron pairs, and charges



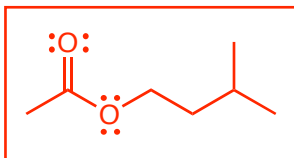
Weakness: takes too long to draw, too hard to read, often uses incorrect angles

Condensed structure - abbreviates Lewis structure by leaving off unbonded electron pairs and writing hydrogens next to the atom they are attached to



Weakness: still takes a long time to write, still hard to read, still often uses incorrect angles
Strength: often used by textbooks because it is easier to typeset

Line structures - abbreviates Lewis structure by leaving off carbon atoms, hydrogen atoms connected to carbons and their bonds, but showing unbonded electron pairs.



Weakness: sometimes difficult for students to learn (at first)
Strengths: easy to draw, easy to read, uses correct angles (tetrahedral angles may be flattened)
most often used by practicing chemists

Name - uses rules of nomenclature to give a unique name to the compound

isopentyl acetate

Weakness: have to decipher the name to know what the compound looks like
Strength: can be easily typed, contains enough information to draw the structure