

Chem!stry

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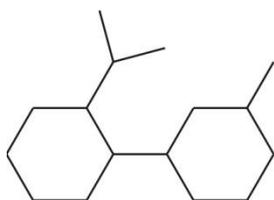
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Organic Compounds with Strange or Unusual Names

Bicyclohexyl: This molecule not only has a name that sounds like a bicycle, it looks like one as well! The complete systematic name of the molecule shown below is actually *2-isopropyl-3'-methylbicyclohexyl*.

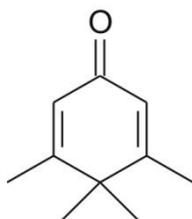
Question: Give the structural formula for *4-isopropyl-4'-methylbicyclohexyl*.



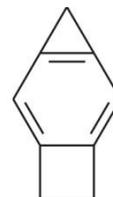
Bowtiediene: The molecule for formal occasions? This is another molecule that is named after its shape, although its systematic name is *spiropentadiene*. **Question:** What would be observed when bromine is added to a sample of *bowtiediene*? Give the structural formula for the product of this reaction.



Penguinone: The trivial name for this molecule originates from the fact that its 2D structure resembles a penguin. **Question:** Suggest a possible systematic name for this compound.

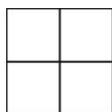


Rocketene: Named after its structural resemblance to a rocket. **Question:** Write a balanced chemical equation for the complete combustion of *rocketene*, forming carbon dioxide and water as the reaction products.

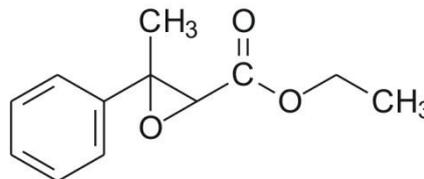


Windowpane: This is a theoretical molecule that has never been synthesised. It is more accurately known as *fenestrane* which is derived from the Latin word *fenestra*, meaning window.

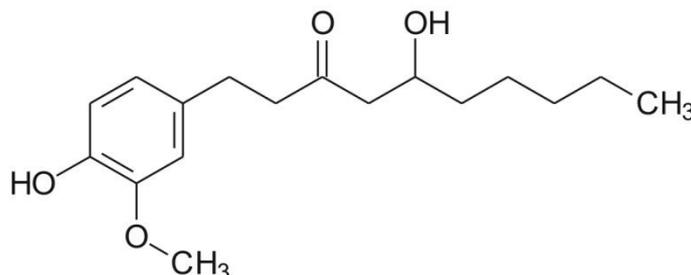
Question: Suggest the structural formula of *broken windowpane*.



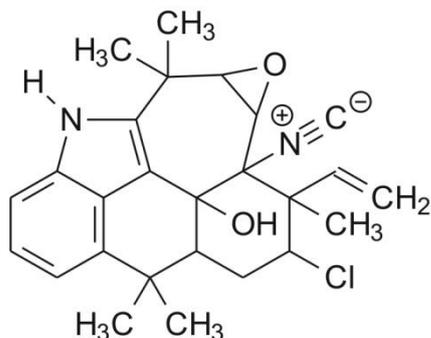
Strawberry Aldehyde: This molecule's proper name is *ethyl methylphenylglycidate*, and it is used in the food industry as an artificial strawberry flavour. **Question:** Give the structural formulae of a carboxylic acid and alcohol that could be used to synthesise *strawberry aldehyde*.



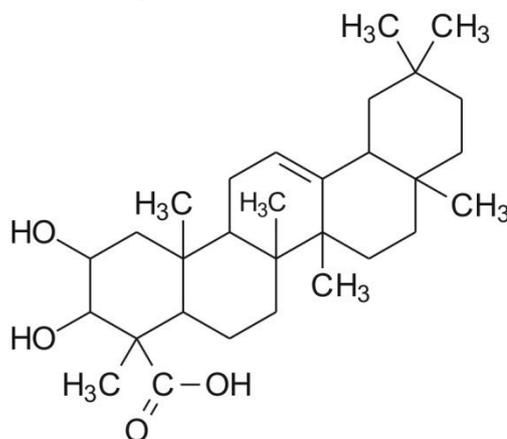
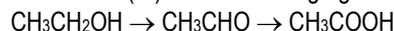
Gingerol: This molecule is the active constituent of fresh ginger. *Gingerol* is similar to *capsaicin*, the compound that gives chilli peppers their spiciness. **Question:** Give the structural formula of the compound formed when one mole of *gingerol* reacts with two moles of propanoic acid in the presence of concentrated sulphuric acid (as catalyst).



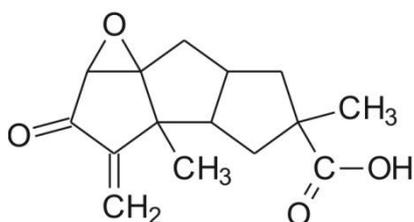
Ambiguene: *Ambiguenes* are cytotoxic fungicidal *indole alkaloids* that are extracted from blue-green algae (*Fischerella Ambigua*). As many as seven different molecules are known, although it could be five. Or nine. **Question:** Draw a dot (●) and cross (×) diagram to show the bonding in the isonitrile group, $R-N^+ \equiv C^-$.



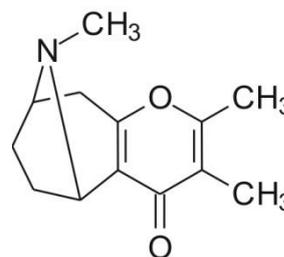
Commic Acid: This molecule is always good for a laugh! It gets its "comical" name since it is a constituent of the plant *Commiphora pyracanthoides*, a member of the family of Myrrh trees. When reduced to the aldehyde, its name presumably changes to commical! **Question:** Write ionic half-equations for the following sequence of redox reactions, using acidified potassium dichromate(VI) as the oxidising agent:



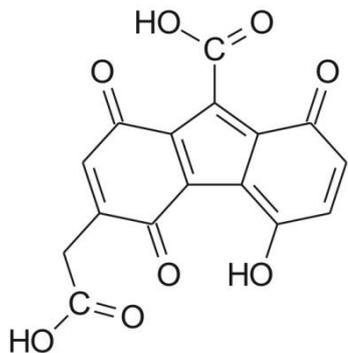
Complicatic Acid: This molecule did not get its name because it is complicated to make! Its name originates from the plant *Stereum complicatum* from which it was isolated. **Question:** State which qualitative tests could be used to identify the various functional groups in *complicatic acid*.



Darlingine: This molecule is lovingly extracted from the Brown Silky Oak tree, *Darlingia darlingiana*. Its biological activity has not yet been fully investigated, but it may have activities similar to other *tropane alkaloids*, such as muscle contraction and stimulation (but only if you treat it nicely). **Question:** Calculate *darlingine's* percentage composition by mass.



Hipposudoric Acid: This is a blood-red pigment found in hippopotamus sweat, and gets its name from *hippo* + *sudor* (Latin for sweat). It absorbs ultraviolet radiation and thus functions as a natural sunscreen. It also has antiseptic properties. Its red colour is responsible for the myth that hippos sweat blood. **Question:** What type of polymer is produced when *hipposudoric acid* reacts with ethane-1,2-diol? Give the structural formula of the polymer showing at least three repeating units.



Jesterone: This playful and mischievous molecule is found inside the fungus *Pestalotiopsis jesteri*, which lives inside yew trees.

Question: Give the structural formulae and names of *three* isomers of *jesterone*.

