

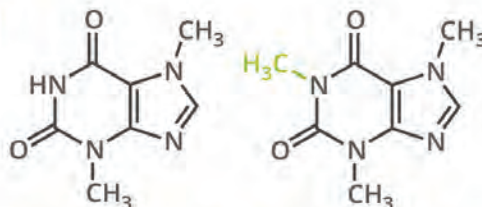
Periodic Graphics With Compound Interest

A collaboration between C&EN and Andy Brunning, author of the popular graphics blog Compound Interest (compoundchem.com). To see all of C&EN's Periodic Graphics, visit <http://cenm.ag/periodicgraphics>.

THE CHEMISTRY OF HOLIDAY BERRIES

'Tis the season... for berry-covered decorations. Some of these fruits are poisonous, and some of them have supposed health benefits. Here, we sample their chemistry.

HOLLY BERRIES



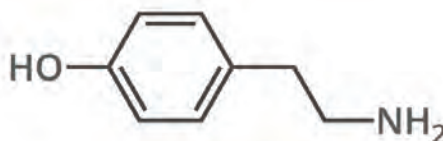
THEOBROMINE

CAFFEINE

Holly berries contain bitter compounds, such as saponins and alkaloids, which make them mildly toxic if eaten.

One alkaloid culprit is theobromine, also found in small amounts in chocolate. The leaves of some species contain caffeine too.

MISTLETOE BERRIES

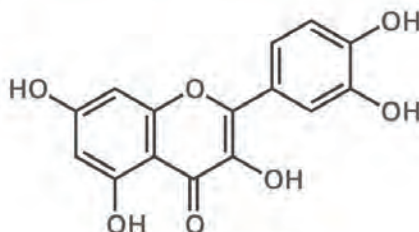


TYRAMINE

Berries also contain viscotoxins and phoratoxin

Mistletoe berries are mildly toxic if ingested. The berries contain toxic peptides as well as the alkaloid tyramine, which can interfere with monoamine oxidase inhibitors (MAOIs), drugs used to treat depression. This interference can lead to severely elevated blood pressure.

CRANBERRIES



QUERCETIN

Cranberries have a reputation as a health food. Scientists have shown that polyphenols in the berries, such as quercetin, can slow the growth of or kill cancer cells. Similar findings in human studies, though, have been limited. Evidence that cranberry juice can treat urinary tract infections is similarly limited.



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