

# Could the Taste of Vodka be Related to Molecular Makeup?

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Image source: free-extras.com

(PhysOrg.com) -- When we think of taste, we don't normally think about how something's molecular makeup influences our tongues. A group of scientists at the University of Cincinnati and Moscow State University tested the molecular structure of different vodka brands, and began working out some parameters that might indicate which type of vodka is more "smooth", depending on its chemical properties.

It seems a little strange to consider this, since vodka is, for the most part, just a mixture of [water](#) and [ethanol](#). But, upon analyzing five different brands of vodka, the researchers discovered that there slight differences in [molecular structure](#). [RSC offers this on the vodka study](#):

*"We observed measurable differences among the brands," says [Dan]*

*Schaefer. Analysis of the Raman and IR spectra indicated all the solutions contained four components - pure water, pure ethanol, and two hydrates. However the concentration of one of these hydrates,  $E \cdot 5.3H_2O$ , varied between vodkas.*

*"It looks like this can be used as a measure of the physical properties of vodka," says Schaefer.*

The taste, suggests the researchers, could be influenced by the way the water molecules create a cage around the hydrate in question. If there are higher amounts of the [hydrate](#), then there are fewer free water molecules, and that could influence the taste of vodka. Of course, reports RSC, not everyone is impressed with the vodka result:

*Dirk Lachenmeier, head of the alcohol laboratory at the Chemical and Veterinary Investigation Laboratory in Karlsruhe, Germany, thinks the team's conclusions are conjectural. "There is no basis to push that this might be the holy grail of vodka taste differentiation," he says. ...And, although thought of as a "pure" spirit, Lachenmeier says vodka manufacturers are allowed to slightly influence the taste with different additives such as citric acids.*

The effort to quantify items that seem purely subjective, like taste, are likely to continue. Schaefer wants to do additional studies to use a parameter to correlate the [molecular structure](#) seen in vodka brand preference amongst consumers.

**More information:** Manisha Laloo, "Vodka's molecular cocktail," RSC (May 27, 2010). Available online: [www.rsc.org/chemistryworld/New ... 010/May/27051001.asp](http://www.rsc.org/chemistryworld/New ... 010/May/27051001.asp)

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