Most imported olive oils don't match 'extra virgin' claims, study finds

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(PhysOrg.com) -- Many of the olive oils sold in California retail stores are not the top-grade "extra virgin" oils that their labels claim they are, according to a landmark study by researchers at the University of California, Davis, and in Australia.

The research team found that 69 percent of the imported oils sampled, compared with just 10 percent of the California-produced oils sampled, failed to meet internationally accepted standards for extra virgin [olive oil](#).

The new study, the first of its kind by an American academic institution, examined olive oils labeled as extra virgin, and purchased in California supermarkets and "big box" retail outlets. A report detailing the study's findings and the names of the brands evaluated is being released today by the UC Davis Olive Center and is available online at: [olivecenter.ucdavis.edu/](#) .

"The intent of the study was to provide consumers and retailers with an accurate picture of the quality of olive oils now being marketed through grocery stores and other retail outlets in California," said Flynn, noting that the United States is the third-largest consumer of olive oil in the world.

"Our hope is that these findings will lead to improved methods for evaluating extra virgin olive oil, and increased [consumer confidence](#) that 'extra virgin' on the label means extra virgin in the bottle," he said.

Extra virgin olive oils, which command a premium price in the marketplace, must be extracted from the olive without heat or solvents, unlike cheaper refined oils. International and U.S. Department of Agriculture standards also require that extra virgin olive oils meet specific criteria for chemical makeup and sensory qualities including flavor and aroma.

"Before this study, we had anecdotal reports of poor quality olive oil being sold as extra virgin," said Dan Flynn, executive director of the Olive Center. "Now there is empirical proof."

"The oils that failed in our tests had defects such as rancidity — many of these oils just did not taste good," he said.

Flynn noted that the defective samples failed the extra virgin standards for one or more of these reasons:

• oxidation due to elevated temperature, light and or aging;
• adulteration with cheaper refined olive oil; and
• poor-quality oils made from damaged and overripe olives, processing flaws or improper oil storage.

The study also revealed that the analytical chemistry methods established by the International Olive Council and the U.S. Department of Agriculture often do not detect defective oils that fail extra virgin sensory standards. The researchers found that the chemistry methods used in Australia and Germany were more effective in confirming negative sensory tests.

Background

The Olive Center initiated this study to investigate widely publicized, but unconfirmed, reports that olive oils labeled as extra virgin and imported

from abroad for sale in the United States are actually lower quality olive oils.

Extra virgin is the highest grade of olive oil, according to standards set by the U. S. Department of Agriculture and the International Olive Council, an international, intergovernmental organization that deals with issues involving olives and olive oil.

The council, established by the United Nations, includes countries that produce 98 percent of the world's table olives and olive oil.

The United States is not a member of the council; however olive oil produced in the U.S. must meet recently adopted USDA olive oil standards, which closely correspond to the international standards and will go into effect on Oct. 25, 2010. The standards include specifications for the grades of extra virgin, virgin, refined olive oil and olive oil, which is a blend of virgin and refined olive oils.

To be considered extra virgin, the oils must meet very specific chemistry-based criteria, have no sensory defects, and contain some fruitiness in their flavor and aroma.

Extra virgin olive oil can be adulterated by mixing extra virgin with cheaper refined oils such as hazelnut oil or with a cheaper refined olive oil, making the adulteration more difficult to chemically detect.

The UC Davis/Australia study

During one week, beginning March 3, 2010, the researchers bought 14 imported brands and five California-produced brands of olive oil that were being sold under extra-virgin labels at retail stores. The imported samples were purchased from three California regions: Sacramento, the San Francisco Bay Area and Los Angeles County. The California brands

were found only in the Sacramento and San Francisco Bay areas.

Three bottles of each imported brand and two bottles of each California brand were sent to the Australian Oils Research Laboratory in New South Wales, where the oils were put through sensory and chemical tests specified by the international Olive Council and also were analyzed using methods adopted in Germany and Australia. Directing the sensory analysis at the Australian lab was Rodney Mailer, an expert on oils and oil crops who has been involved with olive research since 1996.

Chemical analyses also were conducted at the UC Davis Olive Oil Chemistry Laboratory, in most cases using bottles with the same lot numbers as those tested in Australia. Edwin Frankel, one of the world's leading authorities on oxidation of fats and oils, led the UC Davis analyses in collaboration with Charles Shoemaker, co-chair of the UC Davis Olive Center, and Olive Center chemist Selina Wang.

Provided by UC Davis