

29 June 2007

By: Stefan Anitei, Science Editor



## [How to Determine the Age of Wine Based on Its Radioactivity!](#)

### *The potassium40*

A good wine does not come cheap. Usually, if you go to a European country with tradition on wines, all that is under \$8 dollars per liter could be discarded. Of course, the most exquisite wines can reach hundreds of dollars and in luxury restaurants this can go further. But what about a bottle of wine costing \$ 160,000? This is the price paid at the London's Christie House for a bottle of Bordeaux, a 1787 Chateau Lafite, in 1985 and, according to The Guinness Book of World Records, still is the world's most expensive bottle of wine. The most expensive white wine ever sold: a 1787 Chateau d'Yquem (\$56,588). Even if wine must age to get its full flavor, this does not mean centuries, but several years. After 50 years, wine is already undrinkable. This wine is bought not for drinking, but for complete collections by the collectors. And as the very old wines come so pricey, forgery is tempting. So how can you say if a wine is or not a century old, as higher age means higher price? A French team has found something. Nature is an immense source of radioactivity and a part of it is absorbed by plants and animals inhabiting the surface of the planet, including the grapes from which the wine we drink is processed. Researchers at the Center of Nuclear Research of Bordeaux-Gradignan applied the current advances made on the analysis of the radioactivity to track down precisely a wine's age. This novel method of dating is based on the assessment of the level of the potassium 40, a radioactive isotope of the common element potassium abundant in all living things, through a complex spectrometer built with germanium crystals. In time, the radioactive isotope decays and its percentage in the total amount of the wine's potassium indicates the year of the wine's processing. Less frequent is the presence of cesium 137, an artificial element linked with the nuclear activity. Wines made with grapes collected between 1950-1963, an epoch of intensive atomic trials and in 1986, the year of the accident of the Chernobyl central, show a high level of this radioactive element.