

Goldberg DM, Karumanchiri A, Eng E, *Diamandis EP*, Yan J, Soleas GJ, Waterhouse AL. Resveratrol content of wines assayed by a direct gas chromatographic-mass spectrometric technique. *Am J Enol Vitic* 1993;44:344.

Goldberg, D. M.\*, A. Karumanchiri, E. Eng, E. P. Diamandis, J. Yan, G. J. Soleas, and A. L. Waterhouse (\*Dept. of Clinical Biochemistry, University of Toronto, Banting Institute, 100 College Street, Toronto, Ont. M5G 1L5, Canada). **Resveratrol content of wines assayed by a direct gas chromatographic-mass spectrometric technique.**

Much interest has focused upon resveratrol, a trihydroxy stilbene present in some grape species whose synthesis is increased many-fold in response to fungal infection. In light of reports claiming that it lowers lipids and inhibits platelet aggregation in rodents, it has been proposed that the ability of wine to reduce the incidence of ischemic heart disease in man may be due, at least in part, to the presence of this constituent. Previous investigations have been conducted with time-consuming procedures based upon repeated solvent extraction and one or more HPLC steps. To overcome these limitations, we have developed a GC-MS procedure which permits the direct injection of 1  $\mu$ L of eluate from a C-18 disposable column without the need for derivatisation. The method, which offers good precision, linearity, and quantitative recovery, is also suitable for juices, jams, and jellies, and biological samples such as serum and urine [*Clin Biochem* 26(2):126-7 (1993)]. We have used it to study the resveratrol content of more than 200 wines, on the basis of which we have reached the following preliminary conclusions. Low concentrations have been found in all 100 white wines examined, with the exception of four Swiss products (range 0.12 - 0.33 ppm), one white Burgundy (0.27 ppm) and one California Sauvignon blanc (1.3 ppm). Ports and other fortified wines (n = 10) also contained very low or undetectable levels. Most red wines contained measurable concentrations, those in Niagara products being higher than in California, Australian, or Italian wines, but consistently high concentrations were found in Oregon Pinot noir and in two of three California Pinot noirs analysed. In line with these findings, Burgundy and Beaujolais reds tended to have higher concentrations than those of Bordeaux, with Rhone reds intermediate. Two Swiss reds of Pinot origin had very high concentrations. In addition to varietal type, climate, soil conditions and vinification techniques, the maturity of the berries at harvesting seems to determine the resveratrol content of wine.