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### [Faster GC Analysis of Medical Cannabis Terpenes with Same 624Sil MS Selectivity](#)

Tuesday, March 25th, 2014 by [Jack Cochran](#)

The chromatograms below show what happens when you translate a GC method (previously used for medical cannabis terpenes [here](#) and [here](#)) from a 30m x 0.25mm x 1.40µm Rxi-624Sil MS GC column to a 30m x 0.25mm x 1.00µm Rxi-1301Sil MS column. Both of these columns have arylene-modified cyanopropylphenyl dimethyl polysiloxane-type stationary phases. As should be expected, the separation is approximately the same, but faster, due to the thinner film on the 1301Sil MS.

Another thing that the thinner film gives users is the ability to elute less volatile compounds without long isothermal hold times. The example here is for [Phytol](#), an acyclic diterpene alcohol that may be a therapeutically-active compound in cannabis. Phytol wasn't in the terpene mix I analyzed on the 624Sil MS, and in fact, I added several "new" terpenes to my qualitative medical cannabis terpenes standard for the 1301Sil MS work, including Sabinene, alpha-Phellandrene, Ocimene, p-Cymene, alpha-Humulene, alpha-Bisabolol, and Phytol. I've labelled some of those additional terpenes with small letters in the first 1301Sil MS chromatogram and the analyte list, and I show the later eluting additions by name in the second 1301Sil MS chromatogram.

I am continuing this work along several lines, including running on even thinner-film cyanopropylphenyl dimethyl-type columns. Why do that? Because we can pick up efficiency, i.e. more separation power through narrower peaks. Chromatographic efficiency is EXTREMELY important in this type of analysis because there are many, many terpenes in medical cannabis and *high efficiency GC is the only way to go* to achieve the best separations and avoid coelutions that will lead to inaccuracies in terpene quantification for medical marijuana.

I'd like to acknowledge Andrew Goldsmith of [SRI Instruments](#) for providing some of the terpene standards, and Don Rhoads of Restek for making the beta-version Rxi-1301Sil MS GC column.