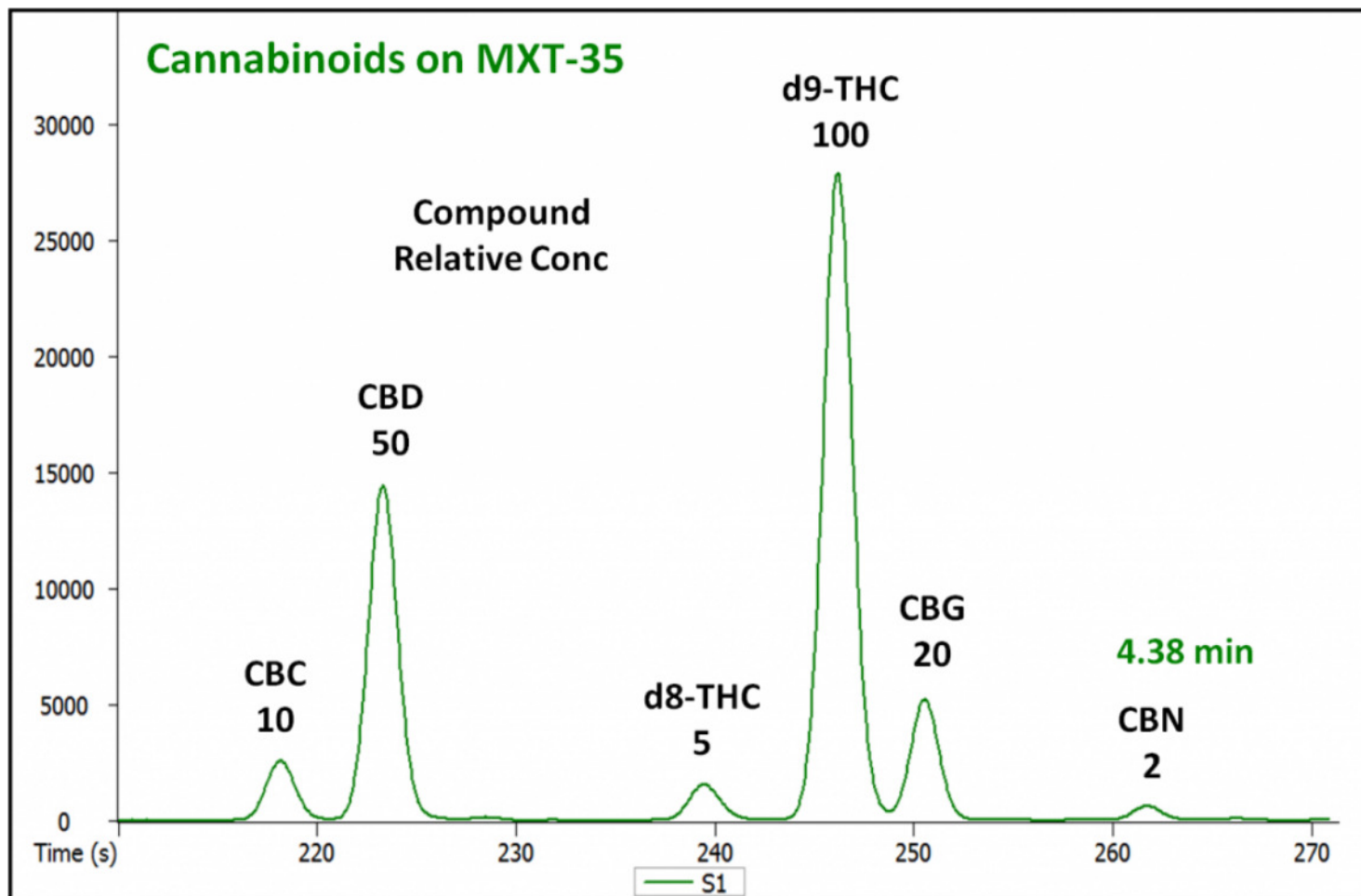


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[Analyzing Residual Solvents in Cannabis Concentrates: A Sticky Situation](#) »

MXT-35 GC-FID: Medical Marijuana Cannabinoids

May 12th, 2014 by [Jack Cochran](#)

I'm now adding a **15m x 0.53mm x 0.50µm MXT-35** to the GC column data collection effort for cannabinoids, thanks to Ron Stricek's help with getting that column manufactured for me. This column is made out of metal and has the features/benefits listed in [this brochure](#). In addition to the ruggedness of the metal column and the ability to coil it tightly for smaller GC ovens, the MXT-35 has a maximum operating temperature of 340°C versus 300°C for the Rtx-35. AND, it does a beautiful job of separating the important medical cannabinoids when using gas chromatography.



15m x 0.53mm x 0.50µm MXT-35, constant flow H₂ 4.2 mL/min; Sky Precision split liner, 250°C, split 10:1
GC oven: 225°C (0.1 min), 19.4°C/min to 330°C (1.5 min), Flame Ionization Detector 340°C

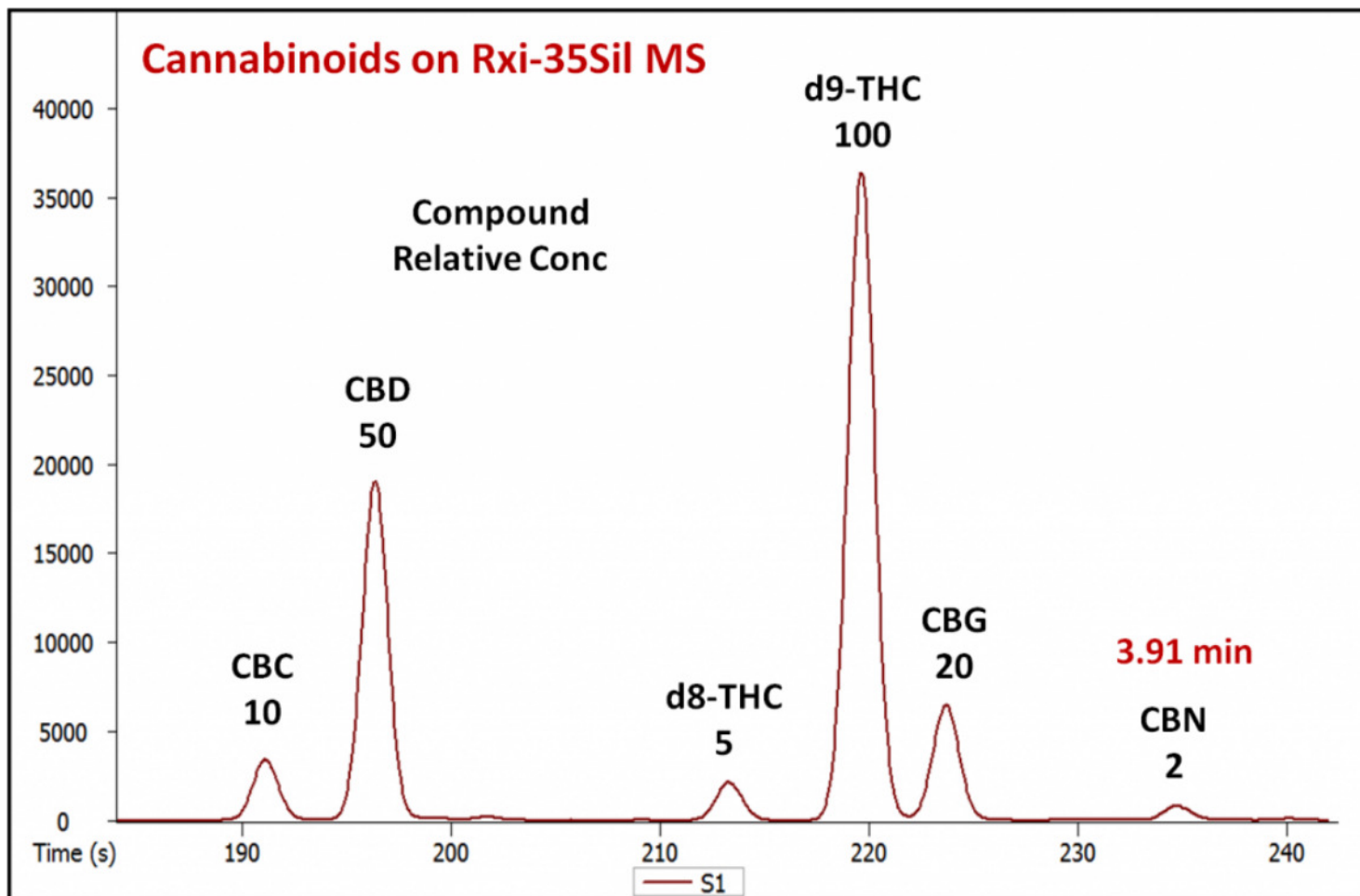
The earlier ChromaBLOGraphy post for cannabinoids on Rxi-35Sil MS and Rtx-35 is repeated in whole below...

Important Medical Marijuana Cannabinoids Analyzed by GC-FID on Rxi-35Sil MS and Rtx-35

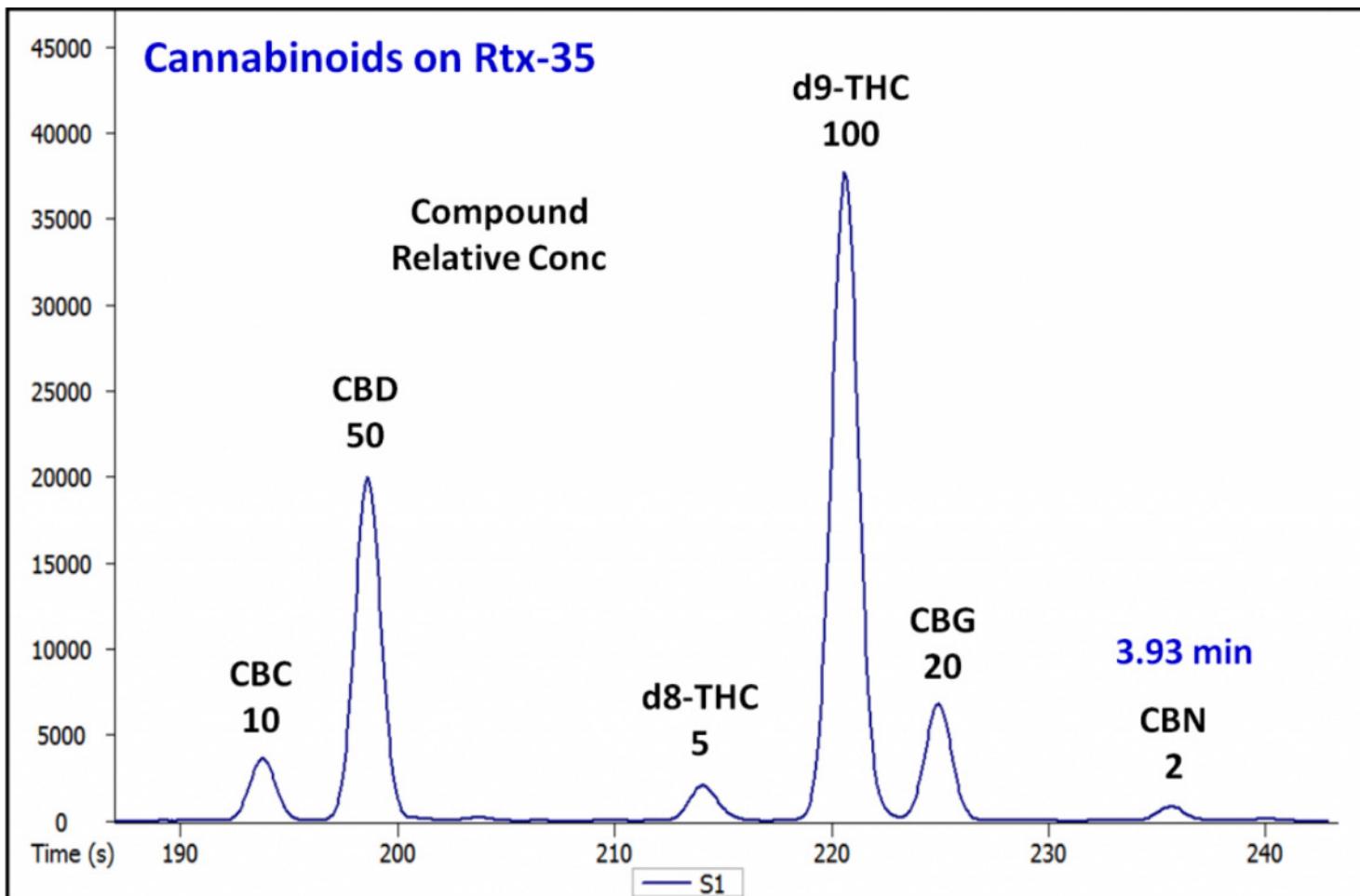
In a previous post, "[Don't overestimate cannabidiol during medical cannabis potency determinations with gas chromatography. Use stationary phase selectivity for accuracy and hydrogen for fast analysis.](#)", I recommended a 15m x 0.25mm x 0.25µm Rxi-35Sil MS GC column for fast separations of CBC, CBD, delta-8-THC, delta-9-THC, CBG, and CBN with hydrogen carrier gas. This same separation can be done on a [15m x 0.53mm x 0.50µm](#)

[Rxi-35Sil MS](#), a column format that has additional sample loading capacity and ruggedness, at the cost of slightly longer run times. We also have a [15m x 0.53mm x 0.50µm Rtx-35](#), a 35% pendant phenyl-type column that doesn't have the arylene-modification that the 35Sil MS uses for increased thermal stability. (The 35 has a 300°C maximum operating temperature and the 35Sil MS can go to 360°C!) Sometimes the arylene-modified columns and the pendant-only columns can differ in selectivity, but in this case the chromatograms are very close to each other.

One novel twist I put on this work was to prepare a standard that had different relative concentrations of cannabinoids. Although the variation of concentrations in medical cannabis can range somewhat widely based on strain, I decided to stagger the concentrations from high to low as delta-9-THC, cannabidiol, cannabigerol, cannabichromene, delta-8-THC, cannabinol. This potentially allows more accurate determination of cannabinoids versus using a standard that is equal in concentration for all compounds, considering even that the flame ionization detector probably has the widest linear dynamic range for GC. This variable concentration -standard also allows elution order mapping/confirmation of cannabinoids for GC columns (and LC columns). You can build your own "JC Mix" with individual cannabinoid standards located on our [Medical Marijuana web page](#).



15m x 0.53mm x 0.50µm Rxi-35Sil MS, constant flow H₂ 4.2 mL/min; Sky Precision split liner, 250°C, split 10:1
GC oven: 225°C (0.1 min), 19.4°C/min to 330°C (1.5 min), Flame Ionization Detector 350°C



15m x 0.53mm x 0.50µm Rtx-35, constant flow H₂ 4.2 mL/min; Sky Precision split liner, 250°C, split 10:1
GC oven: 225°C (0.1 min), 19.4°C/min to 300°C (3.0 min), Flame Ionization Detector 320°C

This entry was posted on Monday, May 12th, 2014 at 2:15 pm and is filed under [Medical Marijuana](#), [New GC Columns](#). You can follow any responses to this entry through the [RSS 2.0](#) feed. You can [leave a response](#), or [trackback](#) from your own site.

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