

## Response to Comment on “Cocktail Chromatography: Enabling the Migration of HPLC to Nonlaboratory Environments”

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Lucy et al. raise some interesting points about our recent publication, “Cocktail Chromatography: Enabling the Migration of HPLC to Nonlaboratory Environments”,<sup>1</sup> and report several additional observations relating to this subject. Our investigation of the use of distilled alcohol spirits (rum, vodka, cachaça, aguardiente, etc.) as chromatography eluents began as a somewhat whimsical endeavor, and we were frankly surprised to observe such good chromatographic separations with these relatively inexpensive and widely available “solvents”. Consequently, the somewhat broadened peakshape for the chromatogram in Figure 3 using grain alcohol as an eluent was considered to represent satisfactory, even noteworthy performance. However, we agree with the observations of Lucy et al. that, in general, grain alcohol-based eluents afford chromatographic performance that is comparable to that achieved with HPLC grade ethanol.

Regarding the “backpressure penalty” of ethanol, this is indeed an important consideration, as we detailed in a previous study comparing methanol, ethanol, and 2-propanol as potential replacements for acetonitrile as an HPLC eluent.<sup>2</sup> While the viscosity of ethanol (and resulting backpressure when employed as a chromatographic eluent) is high relative to acetonitrile, it is significantly better than that of 2-propanol. This helps to explain another question that has arisen from readers of our “Cocktail Chromatography” paper: Why not use inexpensive “supermarket grade” isopropyl alcohol?

Regarding the choice of vodka brands, our study focused on the use of inexpensive distilled spirits, with our motivation being to explore the potential for inexpensive access to suitable high performance chromatography solvents anywhere in the world. We were struck by the availability of local versions of clear distilled spirits of various kinds throughout the world, Appalachian white lightning, Mayan pox, Columbian aguardiente, Puerto Rican rum, Brazilian cachaça, Russian vodka, etc. Consequently, we examined only one brand of vodka in our study. We are excited to learn that in follow up research carried out by the University of Alberta group, other brands of vodka were found to show superior performance when used as chromatographic eluents. We also were pleased to learn that there may be some potential for removal of UV-interfering substances from inexpensive distilled spirits by charcoal filtration, thereby rendering them more suitable for use as chromatographic eluents. We toast the University of Alberta group!



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#### Notes

The authors declare no competing financial interest.

### ■ REFERENCES

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