Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about their work.

Supplement to: Blount BC, Karwowski MP, Shields PG, et al. Vitamin E acetate in bronchoalveolar-lavage fluid associated with EVALI. N Engl J Med. DOI: 10.1056/NEJMoa1916433

Vitamin E Acetate in Bronchoalveolar Lavage Fluid Associated with EVALI

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Figure S1. Chemical structure of Vitamin E acetate.

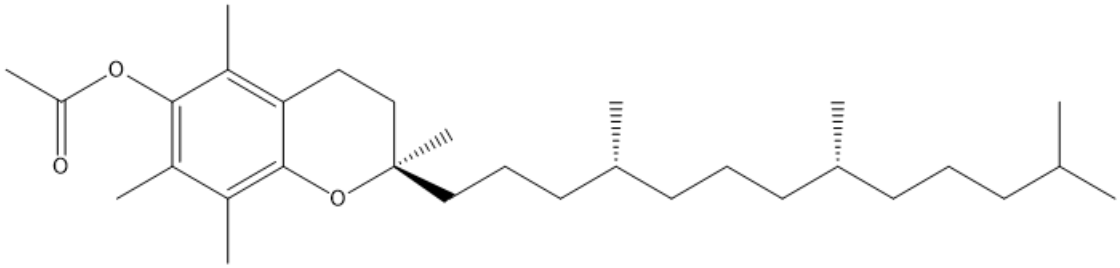

Table S1. Laboratory Methods for detecting toxicants of concern.

Potential Toxicant of Concern	Methods
Plant Oils	Plant oils were measured using mass spectrometry lipidomics analysis for long chain triglycerides (LCT)[1] with a limit of detection (LOD) of 2.0 ng/mL. Coconut oil is a plant oil, but it is identified by measuring medium chain triglycerides (see box below). Plant oils are mixtures of LCT. Specific fatty acyl (FA) patterns of LCT, based primarily on the relative abundance of triglycerides containing FA16:0, FA18:0, FA18:1, FA18:2, and FA20:4, were used to identify types of plant oils.[2] FA patterns for a variety of different plant oils are available.[2]
Medium Chain Triglyceride (MCT)-Oil and Coconut Oil	Triglyceride constituents of MCT-oil and coconut oil were measured using ultra-high performance liquid chromatography tandem mass spectrometry (UHPLC-MS/MS) with an LOD of 0.3 ng/mL. Observed fatty acyl patterns were compared to those of refined MCT-oil, liquid coconut, and coconut oil and based on the relative abundance of triglycerides containing FA6:0, FA8:0, FA10:0, FA12:0, and FA14:0. Given that hemolyzed red blood cells collected during bronchoalveolar lavage had the potential to introduce endogenous lipid into the sample, hemolysis was evaluated by hemoglobin measurement using a HemoCue® Plasma/Low Hb System (LOD of 20 mg/dL). Sixteen (11%) of BAL samples had traces of hemolyzed blood and their fatty acyl patterns aligned with those of serum/plasma.
Vitamin E Acetate (VEA)	VEA was measured using UHPLC-MS/MS with an LOD of 1.10 ng/mL.
Petroleum Distillates	Petroleum distillates were assessed based on the presence of *n*-hexane, methylcyclopentane, cyclohexane, *n*-heptane, and *n*-octane detected using headspace solid phase microextraction (HSPME) with gas chromatography (GC)-MS with respective LODs of 0.1, 0.02, 0.02, 0.1, and 0.1 ng/mL.[3]

Terpenes	Diluent terpenes (α-pinene, β-pinene, 3-carene, limonene, squalene, squalane) are terpenes that can be added to product fluid that enhance flavor or aroma. α-Pinene, β-pinene, 3-carene, and limonene were measured using HSPME with GC-MS/MS with respective LODs of 0.052, 0.052, 0.054, and 0.26 ng/mL. Squalene and squalene were measured by GC-MS with respective LODs of 0.225 and 0.225 µg/mL.
Cannabis-related Compounds	Cannabis-related chemicals were measured using UHPLC-MS/MS to assess the following set of cannabinoids: Δ9-THC, 11-nor-9-carboxy-THC (THC-COOH), 11-hydroxy-THC, cannabinol (CBN), cannabidiol (CBD) and 7-nor-7-carboxy-CBD. Respective LODs were 0.035, 0.019, 0.153, 0.030, 0.078, and 0.094 ng/mL.
Nicotine-related Compounds	Exposure to nicotine was assessed by measuring nicotine, cotinine and trans-3'-hydroxycotinine using UHPLC-MS/MS. Respective LODs were 0.050, 0.033, and 0.017 ng/mL.
Dipalmitoylphosphatidylcholine (DPPC)	DPPC was measured using UHPLC-MS/MS with a LOD of 1.34 ng/mL.

Supplemental References

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