

Vaskovsky V E & Kostetsky E Y. Modified spray for the detection of phospholipids on thin-layer chromatograms. *J. Lipid Res.* 9:396, 1968.

[Institute of Biologically Active Substances, Siberian Department of the Academy of Sciences of the USSR, Vladivostok, USSR]

The paper describes a simplified method for preparing a spray reagent for phospholipid detection. This procedure employs more readily available substances and is less dangerous than the well-known Dittmer and Lester spray. [The SCI® indicates that this paper has been cited in over 280 publications since 1968.]

Victor E. Vaskovsky
Institute of Marine Biology
Far East Science Center
Academy of Sciences of the USSR
Vladivostok 690022
USSR

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"There are probably two important factors that account for the success of papers that stimulate a noticeable response by the scientific community: high scientific professionalism and good luck. This is what happened in our case. The paper represents our first work in lipid chemistry. The professionalism was not ours, but that found in the laboratory of carbohydrate chemistry, which was begun and directed by N.K. Kochetkov at the Institute for Chemistry of Natural Products in Moscow.

"I left that laboratory in 1964 after receiving a PhD degree for studies on triterpenic glycosides, but maintained contacts with my teachers and friends there. During one of my visits to the laboratory, I told my friends about our plans to investigate marine phospholipids. In response, I got a present, a reprint, and a piece of advice. Leon Backinowsky, who had some experience in phospholipid chemistry, gave me a rod of metallic molybdenum and a reprint of the Dittmer and Lester¹ paper concerning a phospholipid-detecting spray. Molybdenum was one of the two principal components for preparation of this spray. He did not have the second main component—MoO₃. Michael Grachev, who worked on nucleic acid chemistry, advised me that the best procedure for phosphorus analysis was a method described in a manual prepared for students at Moscow University.

"In Vladivostok, we began our experimental work with phospholipids. There were no

problems with the determination of phosphorus. The procedure that Grachev had recommended was based on the method described by Lucena-Conde and Prat;² it was simple and gave reproducible results. But we could not immediately get MoO₃ for the phospholipid-detecting spray. At that moment, I realized that, for phosphorus quantification, we had used Zinzadze's reagent, which had been used as a phospholipid-detecting spray by Dittmer and Lester.¹ The method described by Lucena-Conde and Prat² enabled us to prepare the reagent from ammonium molybdate and mercury instead of Mo and MoO₃ and thereby to avoid an unpleasant step, namely, boiling 25N H₂SO₄. In a few days, we had investigated the influence of the components' ratio on spray quality and the specificity of the optimal spray, and then we wrote the manuscript. The key sentence in the paper suggested to biochemists that they could prepare a phospholipid-detecting spray from more readily available initial substances than Mo and MoO₃. The manuscript was returned with some comments, the major one from a referee who said that there was no problem obtaining Mo and MoO₃ in biochemical laboratories in the US and England.

"At first we considered giving up the idea of publishing our results, but then we corrected our manuscript and sent it back to the editor anyway. Perhaps the problem with the initial substances did exist in biochemical laboratories other than our own since our reagent came into wide use soon after publication of the paper.

"I think there are several reasons for the relatively frequent citation of our paper (although it did not become as popular as the paper by Dittmer and Lester¹): first, the rapid development of lipid and membrane research; second, the high scientific reputation of the *Journal of Lipid Research*; and third, the inclusion of the description of our reagent in a handbook on lipid research techniques.³ We later published two more papers on phospholipid-detecting sprays,^{4,5} but the response to them was far less dramatic."

1. Dittmer J C & Lester R L. A simple, specific spray for the detection of phospholipids on thin-layer chromatograms. *J. Lipid Res.* 5:126-7, 1964. (Cited 1,400 times.)
2. Lucena-Conde F & Prat L. A new reagent for the colorimetric and spectrophotometric determination of phosphorus, arsenic and germanium. *Anal. Chim. Acta* 16:473-9, 1957. (Cited 100 times since 1957.)
3. Kates M. *Techniques of lipidology: isolation, analysis and identification of lipids*. Amsterdam: North-Holland, 1972. p. 436-7.
4. Vaskovsky V E & Svetashev V I. Phospholipid spray reagents. *J. Chromatography* 65:451-3, 1972.
5. Vaskovsky V E, Kostetsky E Y & Vasendin I M. A universal reagent for phospholipid analysis. *J. Chromatography* 114:129-41, 1975. (Cited 110 times.)