Oxidative Stability of Interesterified Blends

Sir:

Neff *et al.* (1) have published a paper on the oxidative stability of blends and interesterified blends. Their data indicated that blends exhibited the best stability, and that interesterified blends of the same fatty acid composition were slightly inferior to blends with regard to oxidative stability. This is discussed in terms of changes of triacylglycerol structure, such as a decrease in LLL, POO, and POP (where L = linoleic; P = palmitic; and O = oleic acid) in the interesterified blends compared with the blends. Triacylglycerol structures as such may well have an influence on oxidative stability, and the authors also quoted earlier evidence of this.

However, the possible influence of antioxidants present in the oils, such as tocopherols in the soybean oil and tocopherols and tocotrienols in the palm olein, is not discussed. It is well known that a chemical interesterification, such as the one carried out by Neff *et al.* (1), may lead to the partial production of tocopherol esters of long-chain fatty acids. In the natural oils, these tocopherols and tocotrienols occur in the nonesterified state with a free OH-group. Chemical interesterification may lead to the esterification of this OH-group with fatty acids and may change antioxidant properties.

Actually, some analytical methods that were developed for the purpose of detecting interesterification were based on a similar effect, i.e., the reduction of free sterols by esterification (2). Before any conclusions are drawn regarding the influence of changes in the triacylglycerol structure, it would be interesting to know whether or not the content of free tocopherols had changed in the interesterified blend, compared with the blend.

REFERENCES

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2. Anonymous, Nachweis der Untersuchung von Fetten, in *Deutsche Einheitsmethoden Zur, Untersuchung von Fetten, Fettprodukten, Tensiden und verwandten Staffen,* 2nd edn., edited by Deutsche Gesellschaft für Fettwissenschaft, Munster, Wissenschaftliche Verlagsgesellschaft, Stuttgart, 1989, DGF-Method C-VI 12 (77).

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Oxidative Stability of Interesterified Blends—A Reply

Sir:

The following is in response to the comments of Dr. Aitzetmüller (1) on our paper (2) on oxidative stability of interesterified blends.

We agree with Dr. Aitzetmüller that nontriacylglycerol components may affect the oxidative stability of vegetable oil blends and interesterified products. However, the soybean oil and palm olein used in this study had been chromatographed to free them of nontriacylglycerol components such as tocopherols. These stripped materials were used for the production of the blends and interesterified products reported in our work. The chromatography procedure (in the Experimental Procedures section) described on page 1111 (2) allowed the valid study of the oxidative stability of the blends and interesterified products with respect solely to triacylglycerol composition and structure. This was the only objective of our work as stated in the introduction. Therefore, the results of our report cannot be interpreted on the basis of nontriacylglycerol components. However, we consider Dr. Aitzetmüller's comments on using nonpurified oil for interesterified blends as a potential area for future study.

REFERENCES

1. Aitzetmüller, K., *J. Am. Oil Chem. Soc. 73*:539 (1996).
2. Neff, W.E., M.A. El-Agaimy, and T.L. Mounts, Oxidative Stability of Blends and Interesterified Blends of Soybean Oil and Palm Olein, *Ibid. 71*:1111–1116 (1994).

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