Introduction

Instrumental Analysis of Flavor and Flavor Stability of Fats and Oils

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Flavor and flavor stability are usually measured by organoleptic evaluation. This method is subjective and extremely tedious and time-consuming. With the advancement of gas chromatography, the possibility of using this instrument as a measurement of flavor and flavor stability gradually developed. In 1973, H.P. Dupuy and his associates reported a gas chromatographic method for measuring the volatiles in salad oils and shortenings (1). Since then, many researchers in many laboratories have pursued the improvement of this method for the determination of flavor and flavor stability of fats and oils.

Our laboratory has used an instrumental method to measure the odor and flavor of frying fats and the correlation of the organoleptic scores with the gas chromatographic peak areas of the volatiles (2). Five oils and a fat were subjected to simulated deep-fat frying, using moist cotton balls. Each oil showed different organoleptic scores of odor and flavor, as well as a characteristic gas chromatogram of its volatile constituents. Excellent correlation was obtained by Stepwise Regression analysis by using a computer between the organoleptic scores and certain gas chromatographic peak areas.

The present symposium is an attempt to discuss, in roundtable fashion, the different instrumental methods developed and used by different laboratories, so that a uniform, satisfactory method can be developed.

1. Dupuy, H.P., S.P. Fore, and L.A. Goldblatt, JAOCS 50:349 (1973).
2. Blumenthal, M.M., J.R. Trout, and S.S. Chang, Ibid. 53:496 (1976).