

Introduction

There is a very large number of technical publications on sensory evaluation, and this is quite evident even to most scientists not directly connected with this field of endeavor. To those directly involved, it is also evident that there is a multiplicity of methods being used, sometimes correctly and often incorrectly, resulting in observations or conclusions that often cannot be substantiated in whole, or often even in part, from laboratory to laboratory. To attempt to develop a series of standard procedures which could be used by laboratories throughout the world is one of the primary objectives of Committee E-18 on Sensory Evaluation of Materials and Products.

The majority of members of E-18 are concerned directly with preparation of standard definitions and nomenclature, establishment of psychophysical test methods, preparation of recommended practices for design of experiments, and analyses and interpretation of results. A smaller segment of the Committee who are primarily interested in instrumental methods of measurement of odor and taste were concerned with the apparent lack of correlation between sensory and instrumental methods of analysis. Too often, it has been our observation, there are extensive taste panel research efforts without any attempt whatsoever at correlation to instrumental methods of analysis and vice versa. To determine the extent to which this observation was or was not factually true, members of the Committee were assigned to make a critical examination of the pertinent literature. Of the several thousand articles reviewed in 60 major technical journals in this field up to January 1967, there were only 18 articles judged to have correlations of statistical significance. An additional group, 49 in number, indicated conscientious efforts at establishing significant correlation, but they did not quite meet this criterion.

Taste panels, when adequately and properly conducted, can be expensive; instrumental methods of analysis, properly conceived, may be far less expensive, but only if significantly correlated to the sensory evaluation. We recognize that an instrument cannot replace the human senses, but we also recognize that it often can complement them. To this extent, it is hoped that the researches and reviews covered in this symposium will point up the advantages and need of attempting to more carefully and completely correlate subjective to objective methods of analysis.

That this general subject has also been the concern of others is evident by noting the several recent and forthcoming symposia being scheduled. For example, in January of 1967 a joint symposium on rheology and texture of foodstuffs was held in London. The keynote address at that symposium, by Dr. G. W. Scott-Blair, summed up the general trend toward

objective evaluation of texture, but also emphasized the need for establishing the correlation—if it exists—between objective and psychophysical measurements. One of the highlights of the very recent report and recommendations of the Utilization Research and Development Advisory Committee made to the U.S. Department of Agriculture research program was that “more reliable methods should be developed for the correlation of subjective methods of flavor recognition with the increasingly refined objective methods of measurement.” The American Chemical Society, through its Flavor Subdivision is scheduling symposia in this general field at the next several semiannual meetings. Thus, the concern for this symposium is indeed becoming recognized and widespread.

We have in this symposium a group of authors diverse in their interests: air, water, cosmetics, and foods. My own particular interests are in this latter field, and I note that much effort is being expended by many laboratories in an attempt to relate gas chromatographic peaks to flavor acceptability. The major problem here is not lack of data but, rather, an embarrassing wealth of data. Literally hundreds of components can be isolated on a gas chromatogram, and each component must be related to consumer panel data to evaluate its importance in consumer quality evaluation of a food. Such imposing arrays of data make it almost mandatory to use elaborate statistical procedures, such as stepwise multiple regression to determine which peaks, if any, have significant relationship to quality in general and to flavor in particular.

Much current work, again in the food flavor field, is now directed at the identification of those constituents, which are organoleptically significant, usually high boiling ones and those present in low proportions, in contrast to the past effort primarily aimed at low boiling constituents which may or may not be contributing to flavor. But fortunately, emphasis is moving from identification to quantitative and organoleptic assessment. I know that several of our authors shall expand on these observations.

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