Methodology

Analytical Q&A

(The following column is based on questions sent to AOCS' technical director. If you have a question concerning analytical methodology of fats and oils or related products, please send your question to AOCS Technical Director, 508 S. Sixth St., Champaign, IL 61820.)

Q. We are beginning solvent extraction of the grape residue left after seeds have been removed and juice extracted. The seed is yielding the expected oil, but the residue has yielded what seems to be a wax with a saponification index of 125 and an iodine value of about 70. Do you have any information on this product or any applications?

AOCS has no direct reference on a solvent soluble fraction with the saponification and iodine values you provided. This may be a wax ester type of material which would be expected to be found on the surface of vegetable materials.

Q. Can you provide any information on sterol contents of sunflower oil?

Sterol content in sunflower oil was reported at 0.25% in *JAOCS* 43:254-256. The work was determined from vegetable oil unsaponifiables.

Q. I am presently engaged in the study of color scales. Can you advise as to where AOCS color scales mesh with such scales as APHA/Hazen/Gardner, etc.? I am particularly interested in the wavelengths of yellow and red in measuring vegetable oils.

Q. How can I interpret the results of AOCS Method Cc 13c-50 in determining color?

The AOCS color scales are similar to those of the Lovibond system but do not exactly match. One reference that may be useful is the book *Colour, Its Measurement, Computation and Application*, by Chamberlin and Chamberlin, published by Heyden in London in 1980.

The AOCS photometric method is one in which one value is used to determine the color of a sample of oil. The values obtained correlate only roughly to the AOCS-Tintometer scale and care must be used in making any such comparison. Mehlenbacher's *The Analysis of Fats and Oils*, published by Garrard Press in 1960, provides a discussion of the relationship of photometric color to an AOCS-Tintometer color. As an approximation, the photometric color can be used for the red value of AOCS-Tintometer color. The two values may not correlate well, depending on the sample.

Q. We need a secondary standard to calibrate an infrared spectrophotometer for the determination of *trans*-isomers, according to AOCS Method Cd 14-61. How can we order this standard?

Secondary standards of the material specified in AOCS Method Cd 14-61 are no longer available. Primary standards are available from: Nu-Chek-Prep Inc., PO Box 172, Elysian, MN 56028, USA.

Q. In running AOCS Method Ca 9f-57, Rev. 1971, we are currently using Fisher Alumina A-540. Is there any further processing we must do to this alumina before using it in the column, i.e., drying in the oven? Is there any other way of determining neutral oil—by substituting another adsorbant for alumina?

Our current Fisher catalog indicates the mesh size of this material is 80-200 mesh whereas the method indicates a mesh size of 100-200, but this difference may not be significant. You should note that the moisture content of the alumina must be adjusted by the addition of water to a loss on ignition of 11% (±1%). Further processing beyond this does not seem to be necessary. We are not aware of any validation work to extend the absorbant to materials other than alumina.