Methodology

ISO technical meeting report

The following summary of the meeting of the International Standards Organization (ISO) Technical Committee on Oleaginous Seeds and Fruits (ISO/TC 34) and its Subcommittee 2 (SC 2) was prepared by James K. Daun of the Canadian Grain Commission. Daun is a member of the AOCS Seed and Meal Analysis Technical Committee and is project coordinator for rapeseed methodology.

The ISO Committee on Oleaginous Seeds and Fruits met at the British Standards Institute in London, England, Sept. 29-Oct. 1, 1987. The meeting was attended by delegates from 10 countries. Standard methods published prior to 1982—ISO 735 Oilseed Residues-Determination of Ash Insoluble in Hydrochloric Acid, ISO 749 Oilseeds Residues-Determination of Total Ash, and ISO 5506 Soyabean Products-Determination of Urease Activity—were reapproved with no comment or only minor revisions. Methods in which major revisions were found to be needed were the following: ISO 542 Oilseeds Sampling, ISO 658 Determination of Impurities in Oilseeds, ISO 664 Oilseeds Reduction of Contract Samples to Analysis Samples, and ISO 5507 Oilseeds Nomenclature.

ISO 3309 Oilseed Residues-Determination of Total Nitrogen Content will be withdrawn because it is superseded by ISO 5893 (1979) Animal Feedstuffs-Determination of Crude Protein Content.

For ISO 729 (1979) Oilseeds-Determination of Oil Content by Hexane Extraction (or light petroleum ether extraction), an error statement has been developed. The Federation of Oils, Seeds and Fats Associations Ltd. (FOSFA) developed a closely related method that has been collaboratively studied. The FOSFA method was included in the 1987 Smalley rapeseed series, and the combined FOSFA/ISO method may serve as a suitable basis for a uniform oil content procedure for AOCS.

Several new methods reached the draft proposal stage. For the determination of glucosinolate content of oilseeds and oilseed residues, results indicate that high performance liquid chromatography (HPLC) is superior to gas liquid chromatography (GLC). It was recommended that GLC should be abandoned. Good results also were reported using near-infrared spectroscopy (NIR). A further study is planned using HPLC, spectrophotometry based on enzymatic glucose release, spectrophotometry based on thymol, NIR, and x-ray fluorescence. The proposal for the determination of free residual hexane in oilseed residues was supported, although one group reported on three meal explosions, one of which was thought to be due to a drastic increase of free hexane on a change in moisture content of the meals.

Subcommittee 2 (SC 2) has been developing specifications for various oilseeds. There are some questions about the usefulness of such specifications, especially when the commodities are covered by international trading rules and contracts.

Work on a proposed microwave method of drying oilseeds prior to the determination of oil by nuclear magnetic resonance (NMR) was discontinued because of lack of interest and problems with the procedure.

A proposal for the anlysis of oilseeds in infrared spectrometry met with widespread support. A method developed by the British Standards Institute (BSI), along with methods submitted by members, will be considered and discussed at the next meeting.

Future items for consideration include simultaneous determination of oil and water in oilseeds by NMR and the determination of chlorophyll in rapeseed.

The next meeting of ISO/TC 34/2 will be held June 6-9, 1989, at Angers, France, in conjunction with the First Congress Eurolipid, an international congress marking the centenary of the death of Michael Eugene Chevreul.