

***Inna HUTSALO, Svitlana LITVYNCHUK,  
Tamara NOSENKO, Volodymyr NOSENKO***  
ksa0178@list.ru  
*National University of Food Technologies, Kyiv  
UKRAINE*

#### **DETERMINATION OF MOISTURE CONTENT IN SUNFLOWER MEAL BY REFLECTION NIR SPECTROSCOPY**

Oilseed meal is a waste product obtained in the process of vegetable oil production after oilseed pressing and extracting. The main parameters of meal quality are moisture and crude protein content. Near-Infrared (NIR) Diffuse Reflection Spectroscopy method was used to experimentally investigate these properties of sunflower meal. This method is integral, efficient and very informative. It allows to simultaneously determine different parameters in raw materials having multi-component chemical composition.

Near-infrared reflectance spectra of sunflower meal was studied in this work with the aim to develop calibration equation to determine moisture content. Sunflower meal samples with different humidity variations from 5 to 19 % were used. Measurements were carried out on the „Infrapid-61» spectrometer in the range of wavelengths 1330—2370 nm. It was detected that 1460 and 1930 nm wavelengths are characteristic for moisture content determination of sunflower meal on the basis of reflectance coefficient. Analysis of first and second derivatives from the optical density spectra gave possibility to detect characteristic wavelengths, which were moved to low wavelengths region and were located at 1400 and 1890 nm for the first derivative of the optical density spectra and at 1370 and 1860 nm — for the second derivative of the optical density spectra. Calibration equations were developed and the value of probable approximation (0.98-0.99) was obtained.

Thus, it is possible to determine moisture content of sunflower meal using obtained calibration equations and wavelengths mentioned above.

The study of reflectance spectra peculiarities makes it possible to more widely use NIR spectroscopy method for rapid determination of fat, protein, moisture and other substances content in oilseeds, in their byproducts and meals (whether it be storage or processing stages).

**KEY WORDS:** *infrared spectroscopy, reflectance spectra, sunflower meal, moisture content*