

**Ministry of Education and Science of Ukraine**

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# **Section 1**

## **Food Technologies**

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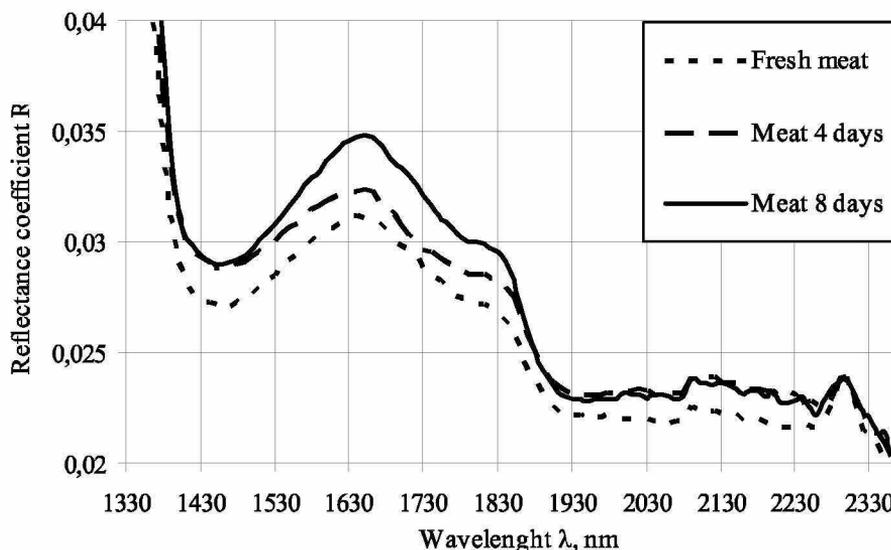
## Determination of raw meat freshness by the express method of near-IR spectroscopy

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**Introduction.** When raw meat is stored for a long time, many biochemical processes take place inside. As result, new substances, that not typical for fresh meat, are formed. Present of these compounds may be identified by near-IR spectroscopy.

**Materials and methods:** test samples of raw pork, a method of near-IR spectroscopy, methods for processing and analyzing of spectra.

**Results and discussion.** Aging process of meat was studied by near-IR spectroscopy. Test specimens of the meat that were cut off from the same part of pig carcass are stored at +4 °C. Near-IR diffuse reflectance spectra of these samples were recorded at regular intervals. To approximate to conditions in the process stream the meat samples were subjected to minimal preparation. All spectra were recorded in automatic mode in the wave range of 1330 - 2370 nm. The time for recording of one spectrum was less than 2 minutes.



Analysis of the IR spectra of studied samples shows proportional increase of the reflectance coefficient of the test specimens in the spectral range 1560-1850 nm in dependence on storage time of the meat samples. Therefore, this region of IR spectra is responsible for the changes inside meat as a result of its storage. The most increase of reflectance coefficient is observed at the wavelength of 1650 nm.

**Conclusion.** If the spectrograph is pre-calibrated, the express method of non-destructive near-IR spectroscopy can be used for objective estimate of degree of meat freshness. The use of this method allows to avoid errors in estimation that typical for organoleptic methods. The improvement and spreading this method for detecting of meat freshness are promising.