

## The application of NIR-spectroscopy analysis for the study of the chemical composition and metabolic energy of flax shives

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### Abstract

The chemical composition of flax shives (which is a large-capacity waste of flax processing industry) were studied by NIR-spectroscopy method. Flax shives were obtained from processing flax varieties TOAST 5 and Antaeus. It was shown that the use of bioregulators Biopag-D and Protective-stimulating complex (PSC) on flax fiber in the herringbone phase increased the yield of flax straw by 9-12%, flax – by 1.5-8%, the fibers on the background of the Legislative Assembly – by 6-7%, the yield of flax shivers by more than 2 t/ha as compared to the control. It was revealed with the use of NIR-spectroscopy that the chemical composition of flax shivers meets the requirements on the quality of fodders and mixed fodders. The content of crude protein, depending on the processing of bioregulators in linen stake was 1.7-5.1%, crude fat – 1.0-4.2%, crude ash – 1.7-4.0%, crude fiber – 51st 65% at the optimal concentrations of calcium and phosphorus 0.67-1.02% and 0.15-0.27%, respectively. Metabolic energy of flax shivers based on air-dry matter was on average 7.3 MJ/kg and corresponded to the average value of this indicator for straw cereals. The content of fodder units per 1 kg of dry matter for flax shivers was 0.11-0.23 kg. The maximum value of fodder units were observed for shivers of varieties Antaeus Biopag in processing, and the minimum – for grades TOAST 5 treated with PSC. Data on the chemical composition and metabolic energy value of flax shivers confirmed the possibility of its use as fodders for productive animals.