

*Materials of Conferences***EFFECT OF IRRADIATION IN VISIBLE AND INFRARED RANGE OF SPECTRA ON NUCLEAR MAGNETIC RESONANCE PARAMETERS OF OIL COMPONENTS**

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For express-analysis of oils high weight components (asphaltenes, resins, heavy isoparaffins) existing methods of analysis – near infrared spectroscopy, X-rays and mass-spectrometry are not fast enough for operative control and require sample preparation. Nuclear magnetic resonance spectra also can not give information about nanodimensional high molecular compounds and cannot be used as method of control. But optimization of technology, prevention of accidents and ambient protection require express-control of fuels and raw materials. Such opportunities possess nuclear (proton) magnetic resonance relaxometry (NMRR) method, which is demonstrated on the examples of several physico-chemical properties of oils and bitumen determination [1]. NMRR also is unique for slow motions study in aggregates, especially by spin-spin relaxation times  $T_{2i}$ . But it was found, that determined by NMRR concentration of asphaltenes and paraffins, differs from determined by ISO 3405-88. This can be explained by restrictions of molecular motion in nondimensional structure fragments and by shortening of relaxation times below the opportunities of NMR-relaxometer (due to dead time of probe coil). We suggested [2, 3] to «warm up» molecular motion in this fragments by irradiating samples at the wave length of their energy absorbance. This will increase amplitude of molecular motions and so selectively increase their relaxation times, which give opportunity to measure them with higher sensibility using NMR-relaxometer.

Effect of laser irradiation in visible and near infrared range of spectra on relaxation times raise  $DT_{2i} = T_{2i} - T_{2i}$  (where  $T_{2i}$  and  $T_{2i}$  are times under and before irradiation) in natural oils is reported. Dependence of NMR-parameters from oil components concentration, affected by irradiation were studied and quantitatively interpreted in terms of energetic levels populations behavior. Correlations of  $DT_{2i}$  with components concentration were revealed.

**References**

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3. Kashaev R.S.-H., Gazizov E.G.. Effect of irradiation in visible and infrared spectral regions on nuclear magnetic relaxation parameters of protons in oil products // *Journal of Applied Spectroscopy*. – V. 77 (3). – P. 321-328.

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**ABOUT METHOD OF INCREASING BIOCHEMICAL ACTIVITY OF LACTOSE FERMENTATIVE YEAST**

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Lactose fermentative biological objects, being technically useful microflora, should have technological characteristics. In this regard search of new methods of their cultivation, increasing the efficiency of fermentation process is very important.

Many researchers have been studying influence of medium formulation on microorganisms' growth. So, Zalashko got the best results of cultivating strain *S. Fragilis* on milk whey adding 0,75 % of ammonia sulphate, 0,5 % of monosubstituted potassium phosphate and 0,1 % of yeastrel (37,05). Wasserman et al. got the maximum crop by adding 0,5 % of ammonia sulphate, 0,5 % of monosubstituted potassium phosphate and 0,1 % of yeastrel to milk serum [1].

According to Bannikova [3] cultivation of yeast in temperature close to upper limits of comfort temperature of growth usually stimulates their growth.

Abramov S.A., Kostenko S.T., Khalilova E.A., Islamova F.I., Omarov M.M. [3] grew yeast on nutritional medium where as mineral and organic nutrition geothermal water of non phenolic class was used, watered down up to mineralization 4,0–4,2 g/l. The method allows decreasing spending deficit components of mineral and organic nutrition.