

of parameters and environmental factors, causes and consequences of the accumulation of nitrites are not yet completely understood.

This paper aims to study the impact of the concentration of ammonium on the organic matter composition expressed by COD_{Cr}, COD_{Mn}, BOD₅, aliphatic and aromatic amines. The analysis of samples, taken from different natural water rivers of the country by laboratory simulations, shows the changes that occur due to the increase of the nitrite concentration and changing the length of time of its high concentration predominance (compared to the maximum allowable concentration), which may lead to the loss of quality of aquatic environmental, but retain the possibility of its rehabilitation potential. Both the total concentration of organic matter and its composition have different impacts on the magnitude and duration of nitrite ion concentration diminishes. The strong correlation between the initial concentration of ammonia in examined water samples and the maximum as well as peak area of nitrite ion concentrations proves that ammonium ion is a powerful disturbing factor of the aquatic environment, but also the relationship between the dynamics of ammonia oxidation and the dynamics of formation and oxidation of nitrite ion.

III-P-7. GAS CHROMATOGRAPHIC ANALYSIS OF SQUALENE FROM VEGETABLE OILS AND BYPRODUCTS OF OIL PROCESSING

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Abstract

Squalene is a polyunsaturated triterpene for dietary use, as pharmaceutical excipient and as protective and moisturizing agent for cosmetics. Vegetable oils are representing valuable sources of squalene. A method for squalene analysis from vegetable oils based on saponification and gas chromatographic analysis was developed. A gas chromatograph with flame ionization detector and (5%-phenyl)-methylpolysiloxane capillary column was used, with helium as carrier gas and oven program: 50 °C (1 min),

10⁰C/min, 300⁰C (9 min). Alkaline saponification with ethanolic solution of KOH followed by hexane liquid-liquid extraction was used for squalene separation from oils. Linearity from 5 to 100 mg/L and LOD=0.0367 mg/L was achieved for squalene in hexane solutions. The method was used for analysis of various vegetable oils and for assessment of a novel squalene separation technology. Squalene concentration in oils from different natural sources: olives mesocarp (*Olea europaea*), sun flower seeds (*Helianthus*), amaranth seeds (*Amaranthus tricolor*), walnut tree seeds (*Juglansregia*), palm tree mesocarp (*Elaeisoleifera*), arganiaseeds (*Arganiaspinosa*), goji seeds (*Lyciumbarbarum*), cedar wood (*Cedruslibani*) and castor plant (*Ricinuscommunis*) was analyzed, squalene concentration ranging from 2.6 to 17600 mg/Kg.

Keywords: *gas chromatography, squalene, vegetable oils*

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III-P-8. MATHEMATICAL MODELLING OF POLLUTANTS DISPERSION USING SURFACE AND STACK EMISSIONS FOR A FERTILIZER PRODUCTION FACILITY

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Abstract

Fertilizer production facilities can discharge big quantities of NH₃ into the atmosphere both through stack and diffuse emissions. NH₃ is a chemical compound with a powerful smell that can be detected by human nose at very low concentrations and can induce different health problems at higher levels.