10^0C/min, 300^0C (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 NH_3 into the atmosphere both through stack and diffuse emissions. NH_3 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.

This study was conducted for a chemical plant that produces NH_3 and a wide range of fertilizers including urea, ammonium phosphate and nitrate etc. In order to assess the NH_3 transport and diffusion into the atmosphere we used a plume dispersion model named Aermod, hourly validated meteorological data for 2014, stack emission data and a surface emission factor that was calculated using inverse modeling.

Results indicate that taking in consideration only the stack emissions, the maximum concentrations are 6 times smaller than the limit. The situation changes dramatically when we introduces an emission factor for diffuse emissions, and values above limit can be often seen, especially in the nearby of the facility. The study revealed that in case of an accident when we took in consideration a 5 times bigger emission data and adverse weather conditions, the population who live in an area of 2 km can be exposed to very high concentrations of NH_3. Also, the results indicated the most adverse weather conditions for dispersion and areas where the pollutant tends to cumulate and should be evacuated fast in an extreme situation.

Keywords: *air pollution, plume, dispersion, fertilizer;*

III-P-9. SPATIAL DISTRIBUTION AND TEMPORAL VARIATION OF CONCENTRATIONS OF HEAVY METALS IN SOIL AND GROUNDWATER IN THE AREA WITH METALLIFEROUS MINERALS PROCESSING ACTIVITIES

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ABSTRACT

Anthropogenic activities such as mining and mineral processing have introduced a variety and a large amount of heavy metals in the ecosystem. Heavy metals are the most toxic pollutants, with impact the environment and human health. This study shows the spatial distribution and temporal variation of concentrations of heavy metals in soil and groundwater in the active processing of metal ores. The area under investigation is located in northern Romania, Maramures County and includes two tailings ponds and