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COMPOSITION OF THE ISOTOPES OF NITROUS OXIDE IN THE CLAY SOIL AT DIFFERENT MOISTURE CONDITIONS

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Abstract
Reducing emissions of nitrous oxides in the agricultural sector is one of the main challenges. Stable isotopes are one of the tools that record information on changes in greenhouse gas production, transportation and emissions. The relationship between the processes in soil and emissions entering the atmosphere. Stable isotopes, which are direct isotopes of nitrous oxide emissions from soil, are already recognised as a promising tool for tracking atmospheric nitrous oxide emissions from various studies. The purpose of this study is to clarify the isotope relationship of nitrous oxide in clay soil at different humidity conditions. Samples from 12 test fields were collected. Samples were weighed in 3 l buckets, each at a total of 1.8 kg. The moistening plan was developed for aerobic and anaerobic soil conditions. Samples were moistened with rainwater every three days, 150 ml and 300 ml, respectively. Measurements for nitrous oxide isotopes have been performed using the Picarro G5131-i equipment under laboratory conditions. During the development of the study, the information gathered and the results obtained give an idea of carrying out measurements of nitrous oxide isotopes under laboratory conditions and set new objectives for further studies. The nitrous oxide isotope 18O is significant and allows tracked sources of soil nitrous oxide emissions and microbiological processes.

Keywords: Nitrification, denitrification, GHG mitigation measures

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