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TOLERANCE OF LICHENS FROM PROTECTED AREAS TO THE CHANGES OF ENVIRONMENTAL FACTORS

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ABSTRACT

In the forest-petrophitic ecosystems of the middle course of the Dniester (right bank) the lichens from 9 protected areas belonging to 34 species were recorded. Of these 12 are rare species, 3 are included in the Moldova's Red Book (2015). It was established that for 10 species the ecological valences to the substrate, illumination and humidity are very narrow, so the ecological spectrum is very narrow. Among the 10 stenoic species 2 are included in the Red Book and 8 are rare, so these will be the first affected in the case of changes in the environmental components.

Keywords: lichens, ecological valences, natural ecosistems.

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BIOGAS TECHNOLOGIES FOR SUSTAINABLE IMPROVEMENT OF ENERGY DIVERSITY

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ABSTRACT

The purpose of this study is to measurably assess an integrated industrial biogas plant and introduce some biogas technologies as alternative sources for energy production in the Kingdom of Saudi Arabia. Biodegradable materials such as organic wastes, sewage, municipal wastes, and green wastes are very important precursors used in energy production plants for obtaining biogas and some certain organic fertilizers. Biogas plants have many benefits; one of their primary functions is being used as anaerobic digesters with different configurations to treat animal and agricultural wastes for energy production. During the process, microorganisms convert biomass wastes into biogas, mainly methane and carbon dioxide. The study shows four steps carried out of a full-scale biogas plant for a life cycle analysis (LCA) with 950 kWh as: initially, the scope and target were defined, then inventory was analysed, the impact was assessed, and finally the results were interpreted in detail. The results of analysis showed that the biogas plant can preclude the equivalent of 2.43E+09 kg of CO_2 global warming and the ozone depletion of 18.80593 kg of CFC-11 equivalent. It was also determined that aquatic environment eutrophication contributed to the prevention of toxicity, acidification, and eco-toxicity for humans. Some organic by-products were obtained from anaerobic digestion (AD) and used as fertilizer for agricultural or other productions.

Keywords: Biogas, Biogas plant, Anaerobic digester, Life cycle analysis (LCA), Inventory analysis

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BIOETHANOL IN TURKEY

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ABSTRACT

In accordance with the estimates, fossil fuels are decreasing in the world, but these fuels will continue to be dominant sources until 2040. The share of renewable energy resources in 2040 is expected to be 16.1%. Similarly, it is expected that global electricity demand will increase up to 80%, by 2.3% rate annually, by 2040. In the light of all these considerations, renewable energies stand out for energy solutions all over the world. In this scope, one of the liquid biofuels, bioethanol is a good energy alternative not only for Turkey's energy future and agriculture, but also the world's as well. Sugar beet is the most convenient and efficient agricultural raw material source for bioethanol production. As the use of bioethanol production increases in Turkey, sugar beet production for bioethanol will increase, gradually. The production of biofuels from agricultural products and the energy agriculture that develops in agriculture sector is a rapidly growing in the world. Developed countries produce a significant portion of the energy in their own countries to meet their energy needs from agricultural products at an increasing rate. In this way, it is ensured that fossil fuels with limited reserves, which are known to have negative effects on the environment, will be used in less amounts and the income of the agricultural sector will be increased by producing high value-added products. In this study, one of the significant biofuels, bioethanol has been examined and its potential, technologies, importance and the latest situation in Turkey investigated. Also, it is aimed to support Turkey's one of the most important energy policies, which is to increase the production of domestic and renewable energies.

Keywords: Renewable Energy, Biomass, Biofuel, Bioethanol, Turkey

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