

CYKL BIOGEOCHEMICZNY AZOTU W GLEBACH EKOSYSTEMÓW BORÓW IGLASTYCH

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1. Wstęp. 2. Zasoby azotu w glebach borów sosnowych 3. Dopływ związków azotu do gleby ekosystemów borowych. 4. Azot w materii organicznej gleby ekosystemu borowego. 5. Etapy mineralizacji azotu w glebie boru sosnowego. 6. Zmiany w cyklu biogeochemicznym azotu zachodzące w wyniku zakłócenia równowagi ekologicznej pod wpływem czynników naturalnych lub działalności człowieka. 7. Podsumowanie

Biogeochemical cycle of nitrogen in the soils of coniferous forests

Abstract: Nitrogen is one of the most important biogenic compounds. It is essential to facilitate development, growth and functioning of all living organisms. Nitrogen is found in many complex organic molecules like enzymatic and structural proteins, nucleic acids and humic substances. Majority of transformation processes during nitrogen biogeochemical cycle is regulated by biological processes.

Nitrogen availability in the soils of coniferous forests, alike in all other ecosystems, is a prerequisite of proper functioning of this ecosystem. Soils of coniferous forests contain large amounts of organically bound nitrogen, but mainly in slowly decaying organic matter. Thus the amounts of nitrogen, readily available for plants and microorganisms, are limited. Nitrogen biogeochemical cycle in coniferous forest soils consists of many processes (e.g. nitrogen fixation, organic matter decomposition, nitrification and denitrification), in which the key role is played by microorganisms, which transform the nitrogenous compounds. The intensity of the microbial processes in coniferous forest soil is adversely affected by not favourable physiochemical properties of the soil (mainly low soil pH, low concentration of easily degradable organic matter). Plants growth and functioning depends on efficiency of photosynthesis, in which nitrogen plays one of key roles. Therefore it is important to study the nitrogen biogeochemical cycle in ecosystems limited by the availability of this element. Better understanding of mechanisms regulating the biochemical processes in coniferous forest soils will create possibility of choosing right strategies of forest management. This will facilitate design of appropriate methods to increase forest productivity without undesired disruptions of natural processes and environmental pollution.

1. Introduction. 2. Nitrogen resources in coniferous forest soils. 3. Input of nitrogenous compounds into the pine forest soils. 4. Nitrogen in soil organic matter. 5. Nitrogen mineralization stages in pine forest soil. 6. Changes in biogeochemical cycle of nitrogen resulting from natural and anthropogenic disturbances of ecological balance. 7. Summary

Słowa kluczowe: azot, bory sosnowe, cykl biogeochemiczny
Key words: nitrogen, pine forests, biogeochemical cycle

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