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**BIOTECHNOLOGICAL BIOGAS PRODUCTION
(БІОТЕХНОЛОГІЧНЕ ВИРОБНИЦТВО БІОГАЗУ)**

Чайка Р. — здобувач вищої освіти групи БТ1/1

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В статті розглядаються методи добування, використання та перспективи біогазу.

Ключові слова: біогаз, метан, органічна речовина.

The article deals with the ways of production, use and prospects of biogas.

Keywords: biogas, methane, organic matter.

Biogas is known as an environmentally-friendly energy source because it alleviates two major environmental problems simultaneously: 1. The global waste epidemic that releases dangerous levels of methane gas every day. 2. The reliance on fossil fuel energy to meet global energy demand.

By converting organic waste into energy, biogas is utilizing nature's elegant tendency to recycle substances into productive resources. Biogas generation recovers waste materials that would otherwise pollute landfills; prevents the use of toxic chemicals in sewage treatment plants, and saves money, energy, and material by treating waste on-site. Moreover, biogas usage does not require fossil fuel extraction to produce energy [1].

What Is Biogas? Biogas is a type of biofuel naturally produced from the decomposition of organic matter. When this organic matter is exposed to an environment without oxygen they free a blend of gases. Although what's mostly released is methane and carbon dioxide, other gases are released too in smaller quantities.

As biogas production happens in the absence of oxygen, this process is also referred to as anaerobic digestion. Simply put, there's a fermentation process that breaks down organic matter, turning what once was waste into a source of energy that can be used to heat, cool, cook, or for regular electricity production, once it's burned.

Biogas is made in a biogas digester. This call it a digester because it is a large tank filled with bacteria that eats (or digests) organic waste and gives a flammable gas, called biogas. Biogas systems make use of a relatively simple, well-known, and mature technology. The main part of a biogas system is a large tank, or digester. Inside this tank, bacteria convert organic waste into methane gas through the process of anaerobic digestion. Each day, the operator of a biogas

system feeds the digester with household by-products such as market waste, kitchen waste, and manure from livestock. The methane gas produced inside biogas system may be used for cooking, lighting, and other energy needs. Waste that has been fully digested exits the biogas system in the form of organic fertilizer [3].

Producing biogas through anaerobic digestion also has meaningful advantages over other forms of bioenergy production and it has been assessed as one of the most energy-efficient and environmentally beneficial technology for bioenergy production. However, this doesn't mean biogas energy is totally clean. When compared to other sources of energy, specifically fossil fuels, it is for sure a better solution, environmentally speaking. However, if crops are grown specifically to use in biogas production it is a waste of soil, energy, and pesticides. And if cattle waste didn't exist in such big proportions it'd mean less GHG in the first place [2].

To sum up, it's important that the production of biogas keeps and starts becoming an integral part of the economy. It is a great solution to take advantage of the energetic potential of residues and it contributes to the recycling of nutrients and organic carbon.

Literature:

1. https://www.homebiogas.com/Blog/142/What_is_Biogas%7Cfq%7C_A_Beginners_Guide
2. <https://youmatter.world/en/definition/definitions-biogas-definition-what-is-biogas/>
3. <https://web.archive.org/web/20180510115131/http://www.simgas.com/advantages-of-biogas/how-does-biogas-work/item46>