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**TECHNOLOGY OF BIOGAS PRODUCTION FROM LIVESTOCK WASTE  
IN A TRADITIONAL WAY**

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**ABSTRACT**

A very large number of plants are produced in Uzbekistan (5.0 million tons of hemp per year; 6.0 million tons of branches, tree leaves and branches, corn cobs, etc. per year). around) and biomass based on farm animal waste are recognized.

The total amount of energy generated from a single hemp stalk is 2.3 million per year. is estimated as equivalent to a ton of oil. Its technical potential is equal to 257.2 thousand tons of oil equivalent per year.

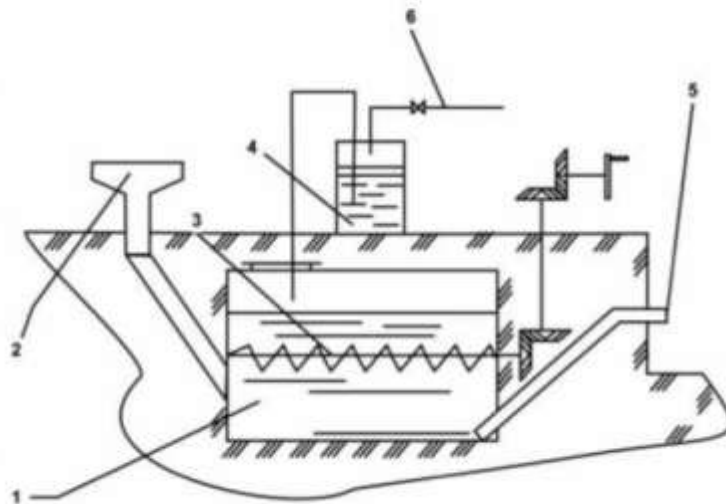
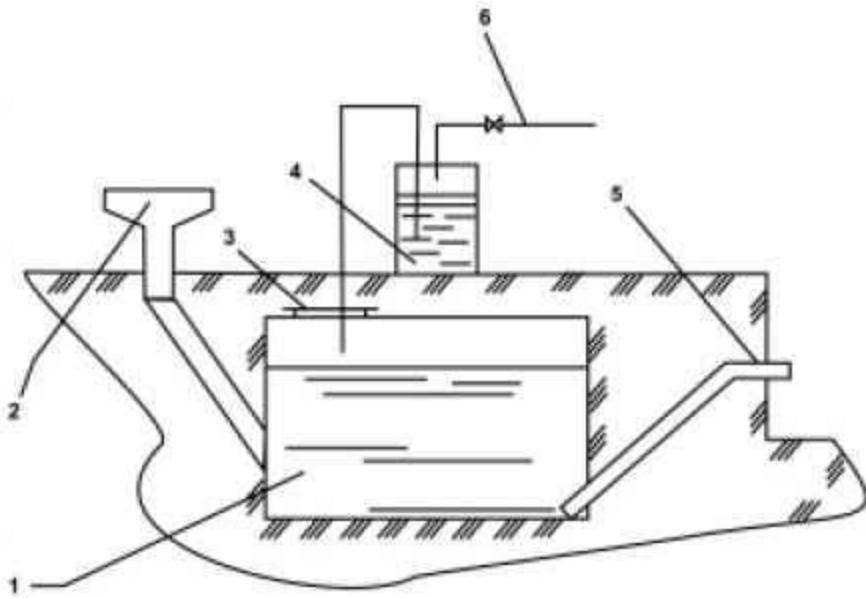
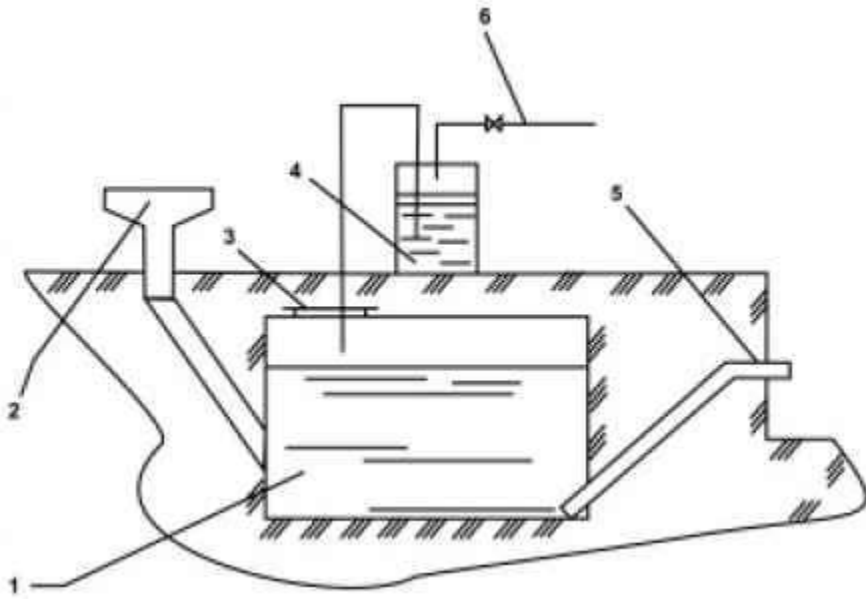
**Keywords**

digestion processes , methane-producing bacteria , anaerobic conditions , amount of pole viruses , heat capacity of combustion , agricultural animals .

**Mechanism of biogas production and methane gasification.** All types of fermentation processes are manifested as the transformation of organic matter into specific changes by microorganisms belonging to different taxonomic groups. In addition to the above, there is another process in nature that differs from others in terms of its quantity, range, and variety of microorganisms participating in it, and that is the process of methane fermentation.

**Methane pollution** is the result of the action of various groups (associations) of microbes. In this process, the organic material (except lignin) undergoes a profound transformation, resulting in the formation of methane, carbon dioxide and other microbial products. Depending on the conditions (thermophilic, mesophilic, psychrophilic) - this is a very long process. In this, non-living organic substances (plant and animal biomass) are broken down into simple components.

**General description of technological processes in biogas plants.**



**Scheme of biogas equipment specialized for manual pouring and mixing of substrate**

1- bioreactor; 2- loading hopper; 3- mixing device; 4- water trap; 5- exhaust pipe; 6- gas outlet.

The conditions necessary for the formation of methane are given in the table below.

Table 1

**Methane is a product to be conditions**

Indicators	Normative indicators	C h saddle indicators
pH	6.8-7.4	6.4-7.8
Amount of volatile acids (by CH <sub>3</sub> COOH)	50-500 mg/l	200 mg/l
Total Alkalinity (according to CaCO <sub>3</sub> )	500-1500mg/l	1000-3000
Exhaust gas composition	65-70% methane, 30-35% carbon dioxide and other gases	
Salts		
NH <sub>4</sub> ( by N )		300 mg/l.
N a		3500-5500 mg/l.
K		2500-4500 mg/l.
C a		2500-4500 mg/l.
Temperature, °C	33-37.	
Methane production	0.3-0.4.m <sup>3</sup> /kg of dry organic matter.	

Methane-forming bacteria have higher growth requirements than acid-forming bacteria, which means they need completely anaerobic conditions and more time to multiply.

Table 2.

**of biogas physicist features**

Indicators	Co m ponents				A mixture of 60% methane and 40% SO <sub>2</sub>
	CH <sub>4</sub>	CO <sub>2</sub>	H <sub>2</sub>	H <sub>2</sub> S	
Volume q name %	55-70	27-44	1	3	100
Combustion heat volume mdj/m <sup>3</sup>	35.5	----	10.8	22.8	21.5
Combustion temperature °C	650-750	----	585	----	650-750

Density, normative border	gr/l;	0.72 102	1.98 408	0.09 31	1.54 349	1.20 3.20
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The physical properties of biogas indicate the possibilities of its use.

Table 3.

**Har different combustible gases burning heat ratio**

Type of fuel (heat of combustion)	Biogas ( in m <sup>3</sup> )			Natural gas in 1 m <sup>3</sup>	Propane in 1 kg	boiler room fuel in 1 kg	Diesel fuel in 1 l	Electric current (kVT.ch)
	CH <sub>4</sub> preservative (%)							
	56	62	70					
Biogas 56% CH <sub>4</sub> (20.0 MDj/m <sup>3</sup> )	1.0	0.91	0.80	0.60	0.44	0.47	0.56	5.6
Natural gas (33.5 MDj/m <sup>3</sup> )	1.68	1.52	1.34	1.00	0.73	0.79	0.93	9.3
boiler room fuel (42.3 MDj/kg)	2.12	1.91	1.69	1.26	0.78	1.00	1.17	11.7

The amount of manure and biogas that can be obtained from agricultural animals and livestock is presented in the table below.

Table 4.

**Indicators of biogas output from manure**

Show k ich	A cow	A pig	Parand a
Amount of manure per head per day, kg	55.0	3.5	0.2
Amount of biogas produced per head per day, m <sup>3</sup>	1.62	0.32	0.02
Volume of biogas from one ton of dry manure, m <sup>3</sup>	300	500	600

Table 5.

**Biogas yield and methane content from different types of raw materials**

Raw material type	Gas output from 1 kg of dry mode, m <sup>3</sup>	Methane storage, %
<b>Animal manure</b>		
Large cattle	0.050-0.34	65



manure		
C h goat manure	0.340-0.580	65-70
Poultry litter	0.310-0.620	60
A baker in Baku	0.200-0.300	56-60
Breeding type	0.300-0.620	70
<b>Household waste</b>		
Waste water, phenol	0.310-0.740	70
Leftover vegetables	0.330-0.500	50-70
Leftover potatoes	0.280-0.490	60-75
Beet residue	0.400-0.500	85
<b>Dry plants</b>		
Straw	0.200-0.300	50-60
Hay	0.200-0.300	59
Barley straw	0.290-0.310	59
Corn straw	0.380-0.460	59
Len	0.360	59
Beetroot cup	0.165	
Sunflower leaf	0.300	59
Clever	0.430-0.490	
<b>other types</b>		
Herbs	0.280-0.630	70
Tree leaves	0.210-0.290	58

In addition, digesting manure deodorizes (deodorizes) it, removes gelments and wild plant seeds, and converts fertilizers into easily absorbed form (mineral form).

During anaerobic digestion of manure, potassium and phosphorus content in it does not change completely. If 30% of nitrogen substances are lost when using other methods of manure processing, 5% is lost during anaerobic digestion. It should also be remembered that nitrogen in fresh manure is in organic form, as a result of anaerobic digestion. passes into the form of ammonium, which is convenient for the plant.

It is a difficult task to make an economic calculation of the environmental benefits of anaerobic digestion of manure. Manure treated in this way is biologically stable and does not attract insects. After anaerobic digestion, the odor-causing substances in manure disappear.



Table 6 .

**Amount of strong smelling substances in composted manure**

Compounds	Natural manure, %	Fertilized manure, %
Phenol	100	4
Cresol "P"	100	10
Skatol	100	79
Fatty acid	100	3

During anaerobic processing, the amount of pole viruses is reduced by 98.5%, the index E.coli is from  $10^8$  to  $10^5-10^4$ , parasite seeds disappear by 90-100%

Rising energy prices are manna In this period, especially, the use of anaerobic biological process brings great economic benefits.

Anaerobic treatment of manure should be considered not only as a source of energy, but also as an additional source of energy.

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