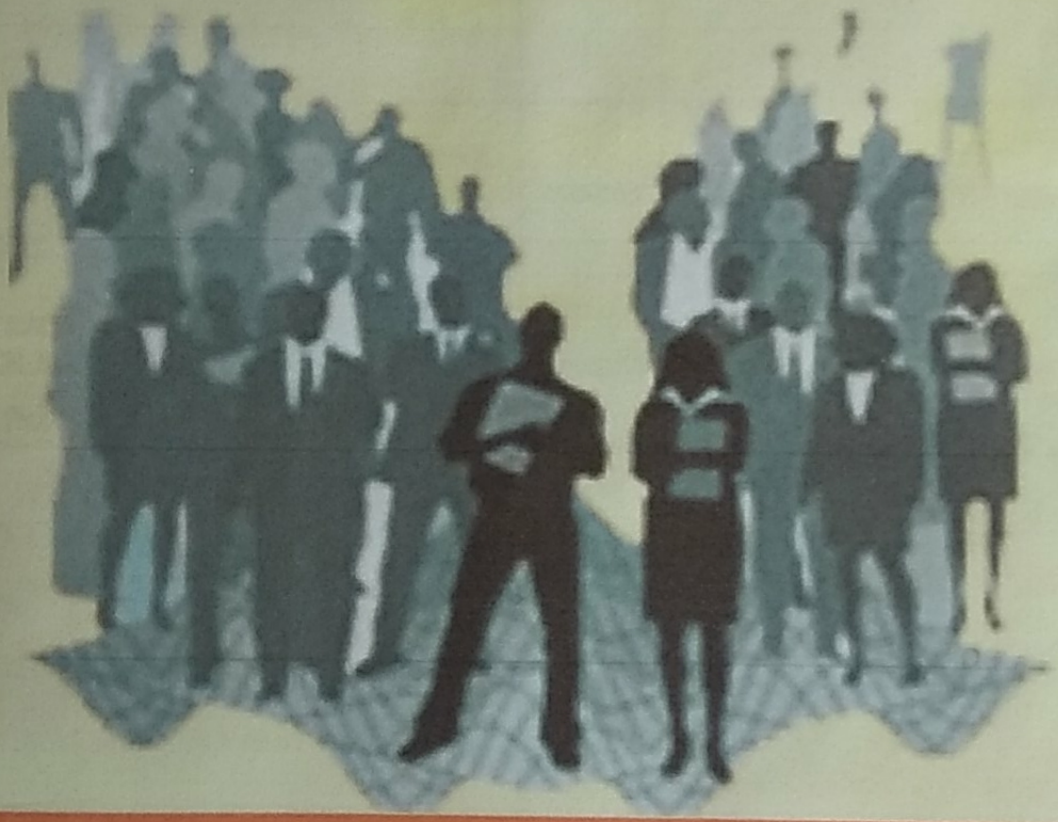
AJMR

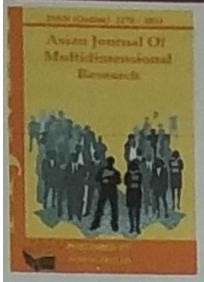
ISSN (Online) : 2278 - 4853

Asian Journal of Multidimensional Research



Published by :
www.tarj.in

ISSN: 2278-4853. Vol 8, Issue 5, May 2019. Impact Factor: SJIF 2018 = 6.053



Asian Journal of Multidimensional Research (AJMR)

(Double Blind Refereed & Reviewed International Journal)

UGC APPROVED JOURNAL

DOI NUMBER: 10.5958/2278-4853.2019.00202.7

ECOLOGICAL BIOTECHNOLOGY OF SEWAGE CLEANING

Buriev S.B*; Yuldoshov L.T**

[1,2]Bukhara State University,
UZBEKISTAN

ABSTRACT

In this article there is given information about the growth, development and multiplication of small duckweed and medium-sized firearms and other poultry farms, as well as the exploration of cleaning water from a pesticide and mineral fertilizers. In this article there was written information about the growth of great water grass little duckweed in foul water of poultry farms and its increase and immaculate water with them. After determining that the small duckweed plant can be grown, evolved, expanded, and polluted in laboratory wastewater by communal farming and poultry farms, the duckweed plant was sown in wastewater treatment tanks and biological pools. For this reason, in order to manifold little duckweeds in the areas of municipal economy enterprises and agricultural zones, to clean water from the crudand to get a large amount of biomass, there are being held experiments in the water of Bukhara municipal economy enterprises and poultry farms.

KEYWORDS: *Great Water Grass, Little Duckweed, Increasing, Poultry, Foul Water, Soiling, Organic, Inorganic Minerals.*

INTRODUCTION

Little duckweed (Lemnaceae), a plant, is found in quiet waters and it has three types. The most widespread type is Lemna Minor. Little duckweeds are precious food for all kinds of wild animals, birds and legumes. Little duckweeds are rich in foodstuffs that they contain 25-30% protein, 20% lipid, 35% carbohydrates, and 10 more vitamins.

In order to manifold little duckweed and to get a large amount of biomassit is necessary to have other chemical substances which contain the nitrogen, the phosphorus, the methacrylate and the other elements of the molecular chemical substances.

It is known thatorganic matters develop actively even in the composition of the little duckweeds. For this reason, in order to manifold little duckweeds in the areas of municipal economy enterprises and agricultural zones, to clean water from the crudand to get a large amount of biomass, there are being held experiments in the water of Bukhara municipal economy enterprises and poultry farms.

There held experience in a laboratory in 3 different conditions in the 20 liters aquariums. Clearly speaking, sewage, 75% + 25% water pipeline, sewage 50% + 50% water pipeline. 3 various types of sewage's physic and chemical composition were explored and planted little duckweed for each type from 100 g/m^2.1st and the 2nd tables show little duck's growing process in the farmland and poultry farms.

TABLE 1. DEVELOPMENT OF SMALL DUCKWEED PLANT IN MUNICIPAL SEWAGE TREATMENT PLANTS

№	Kind of types	Development of duckweed, g/m^2					
		1	2	3	4	5	6
1	Sewage+duckweed	100	130	290	390	640	780
2	Sewage 75%+25% piped water	100	165	228	360	510	630
3	Sewage 50%+50% pipped water	100	175	260	310	325	390

The growth and multiplying of small duckweeds in municipal wastewater during 6days generated a biomass of 680 g, 630 g for dilution and 390 grams in 50% slaking.

TABLE 2 THE DEVELOPMENT OF SMALL DUCKWEED PLANT IN SEWAGE OF POULTRY FARMS.

№	Kind of types	Development of duckweed, g/m^2					
		1	2	3	4	5	6
1	Sewage+duckweed	100	150	285	400	625	750
2	Sewage 75%+25% piped water	100	185	230	375	520	610
3	Sewage 50%+50% pipped water	100	190	255	320	350	400

The development and breeding of small seedlings in poultry farms continued for 6 days, 750 gr on the surface of wastewater, 610 g in 25% liquefied wastewater, and 400 g of biomass in 50% of liquefied wastewater. From this experiment, it has been established that utility farms and poultry farms can produce large quantities of biomass without increasing the wastewater into the tap water, while the duckweed can be actively developed.

Their physicochemical composition was determined in 2nd-3rdtables until the duckweed plant was planted in the aquatic waters.

TABLE3 PHYSICAL AND CHEMICAL COMPOSITION OF COMMUNAL SEWAGE WATER BEFORE PLANTING OF DUCKWEED PLANT

The composition of sewage	Sewage	Sewage +piped water 3:1	Sewage +piped water 1:1
Temperature, C^0	22	22	22
Light , l/th	14	14	14
pH	6,5	7,0	7,0
Bulk matter, mg/l	155,0	125,0	70,0
The color of water	yellow	yellow	yellow
The smell of water, band	5,0	4,0	3,0
The amount of dissolved oxygen in water, mg /l	no	no	no
Oxygen biochemical consumption, mgO_2 /l	155,4	105,5	80,5

Oxidation rate, mgO_2 /l	144,5	110,5	74,8
Ammonia, mg / l	6,0	4,5	4,0
Nitrides, mg / l	0,4	0,2	0,2
Nitrates, mg / l	4,5	3,5	2,0
Sulfates, mg / l	95,8	58,5	40,0
Chlorides, mg / l	75,2	48	34
Water hardness, gr / l	2,5	2,0	1,5

There is no oxygen in the communal wastewater, oxygen biochemical content of 155.4; 105.5; 80.5 mgO2 / l, oxidation rate 144.5; 110.5; 74.8 mgO_2 /l, mineral content is shown in the table.

TABLE-4 PHYSICO-CHEMICAL COMPOSITION OF RICE PLANTATION OF COMMUNAL FARMING AFTER PLANTING

The composition of sewage	**Sewage**	**Sewage +piped water 3:1**	**Sewage +piped water 1:1**
Temperature, C^0	22,5	22,5	22,5
Light , l/th	14	14	14
pH	7,5	7,0	7,0
Bulk matter, mg/l	no	no	no
The color of water	clear	clear	clear
The smell of water, band	no	no	no
The amount of dissolved oxygen in water, mg /l	9,0	8,8	9,0
Oxygen biochemical consumption, mgO_2 /l	11,5	9,5	9,0
Oxidation rate, mgO_2 /l	14,5	19,8	17,4
Ammonia, mg / l	no	no	no
Nitrides, mg / l	no	no	no
Nitrates, mg / l	no	no	no
Sulfates, mg / l	62,8	62,4	54,8
Chlorides, mg / l	64,5	58,4	44,5
Water hardness, gr / l	2,2	1,8	1,6

TABLE 5 THE PHYSICOCHEMICAL COMPOSITION OF THE POULTRY FARMS UNTIL THE PLANTING OF THE DUCKWEED PLANT

The composition of sewage	**Sewage**	**Sewage +piped water 3:1**	**Sewage +piped water 1:1**
Temperature, C^0	21,5	20,0	21,0
Light , l/th	12	12	12
pH	6,5	7,0	7,0
Bulk matter, mg/l	175,0	148,0	95,0
The color of water	red	red	red
The smell of water, band	5,0	5,0	4,0
The amount of dissolved oxygen in water, mg /l	no	no	no

Oxygen biochemical consumption, mgO_2 /l	205,8	174,5	104,8
Oxidation rate, mgO_2 /l	174,5	131,0	82,8
Ammonia, mg / l	8,0	6,0	4,0
Nitrides, mg / l	0,8	0,6	0,4
Nitrates, mg / l	7,5	5,5	4,5
Sulfates, mg / l	105,5	84,4	65,8
Chlorides, mg / l	95,0	71,5	51,9
Water hardness, gr / l	2,4	2,3	2,2

Determination of chemical composition of wastewater of poultry farm shows that there is no dissolved oxygen in water, oxygen biochemical consumption is 205,8; 174.5; 108.4 mgO_2/l, oxidation rate -174.5; 131.0; 82.8 mgO_2/l. High levels of ammonia, nitrites and nitrates in water are shown in Table 2.

TABLE 6 THE PHYSICOCHEMICAL COMPOSITION OF THE POULTRY FARMS AFTER THE PLANTING OF THE DUCKWEED PLANT

The composition of sewage	**Sewage**	**Sewage +piped water 3:1**	**Sewage +piped water 1:1**
Temperature, C^0	20,5	20,5	20,0
Light , l/th	15	15	15
pH	7,5	7,0	7,0
Bulk matter, mg/l	no	no	no
The color of water	clear	clear	clear
The smell of water, band	0	0	0
The amount of dissolved oxygen in water, mg /l	8,5	9,4	9,8
Oxygen biochemical consumption, mgO_2 /l	15,3	12,4	11,8
Oxidation rate, mgO_2 /l	21,4	23,8	19,4
Ammonia, mg / l	no	no	no
Nitrides, mg / l	no	no	no
Nitrates, mg / l	no	no	no
Sulfates, mg / l	64,5	68,3	59,4
Chlorides, mg / l	70,2	65,4	58,2
Water hardness, gr / l	2,0	1,8	1,5

As a result of the active development of the Rhizome plant in the aquatic waters, the color of the water became clear, the smell disappeared, the environment was neutralized, and the amount of dissolved in water increased to 80-85%. Biochemical expenditure of Oxygenand oxidation levels decreased to 90-95%. The ammonia, nitrites, nitrates, and water are fully absorbed by the water. (Table 4-5)

After determining that the small duckweed plant can be grown, evolved, expanded, and polluted in laboratory wastewater by communal farming and poultry farms, the duckweed plant was sown in wastewater treatment tanks and biological pools.

The growth and development of the duckweed plant, which was sown on biological slopes, was observed for 10 days. During this period, the temperature of the water was 21-24 C^0. The radiation level was around 25-30 thousand. In the biological pool, duckweed developed and produced about 910 grams of biomass on a surface of about 1 m^2 of water. The physical and chemical composition of wastewater in the biological pool was investigated before and during the rice plant planting.

TABLE 7 PHYSICO-CHEMICAL COMPOSITION OF SEWAGE IN BIOLOGICAL POOL AFTER PLANTING SMALL DUCKWEED

The composition of sewage	Pre-planting duckweed	After planting duckweed
Temperature, C^0	22,0	21,0
Light , l/th	25	95
pH	6,5	7,5
Bulk matter, mg/l	115,5	no
The color of water	red	clear
The smell of water, band	5,0	0
The amount of dissolved oxygen in water, mg /l	no	7,5
Oxygen biochemical consumption, mgO_2 /l	167,5	19,5
Oxidation rate, mgO_2 /l	144,8	23,2
Ammonia, mg / l	8,0	no
Nitrides, mg / l	0,8	no
Nitrates, mg / l	7,0	no
Sulfates, mg / l	78,3	38,3
Chlorides, mg / l	85,8	52,4
Water hardness, gr / l	2,5	1,8

Table 6 illustrates the high level of clean-up of organogenetic mineral water as a result of the smallduckweed plant's active development in the biological pools.

There are pictures showing the increase of smallduckweed plant in laboratory and biological pools in communal farming and poultry farms.

Picture 1

Picture 2

As a result of the experiments, small duckweed plant has actively developed in the wastewater of communal farming and poultry farms, producing a large amount of nutrient biomass. During small duckweed's active development, it was found that wastewater can be heated with water-molten oxygen and can be cleaned up to 90-95% of organo-mineral substances. The resulting biomass was used as a feed for fisheries and poultry farming. Purgative water is used for irrigation of agricultural crops and for the enterprise as secondary water.

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