

# Cultural features of microorganisms

Iryna Koval, Liliya Shevchuk

<sup>1</sup>General Chemistry Department, Lviv Polytechnic National University, UKRAINE, Lviv, S. Bandery street 12, E-mail: irynazk@gmail.com

<sup>2</sup>Department of Technology of Organic Products, Lviv Polytechnic National University, UKRAINE, Lviv, S. Bandery street 12

**Abstract – Microorganisms' identification from different water media has been carried out. Cultural features of microorganisms are presented including studies some characteristics of colonies' growth in the Petri dishes.**

Key words – microorganisms, pure cultures of microorganisms, colonies, cultural features, nutrient medium, *Bacillus cereus*, *Diplococcus*, *Sarcina lutea*, *Pseudomonas fluorescens*, *Saccharomyces cerevisiae*.

## I. Introduction

Our previous investigations has established an intensification effect under the simultaneous action of gases of different nature and cavitation on the destruction of microorganisms in the natural water and sewage [1], relative rows of their effective extinction, dependence of microbial cells' disappearance rate of their concentration, mechanical cells' damage [2, 3]. Given experimental results are related to the studying cultural features of various types of microorganisms which were previously identified in the water media. The next step of our

investigations will be studying morphological (including coloration colonies of microorganisms by Gram, their sizes) and physiological (response to oxygen i.e. an intensity of growth, sowing by injection into solid medium in vitro and sowing by injection into melted medium in vitro) features of microorganisms that lead to the depth understanding mechanisms of cells destruction under some additional factors.

## II. Experimental Section

The investigated water objects were originating from natural water from different sources and wastewater from brewing production for microorganisms identification of in dominant amounts. Samples of sonicated water (1 cm<sup>3</sup>) were poured out in Petri dishes into nutrient medium. Composition of nutrient agar medium for bacteria – meat water (1 dm<sup>3</sup>), pepton (10g), agar (15g) and for yeast – malty mash (1dm<sup>3</sup>) containing solids (6-8%) and agar (2%). Petri dishes were placed in TS-80M-3 thermostate at the temperature of 37°C for 48 h (for bacterial cells) and 30°C for 96 h (for yeast cells).

## III. Results and Discussion

In investigated water objects were identified such microorganisms in dominant amounts: *Diplococcus*, *Sarcina lutea*, *Bacillus cereus*, *Pseudomonas fluorescens* among bacteria types and *Saccharomyces cerevisiae* among yeast). Therefore, as test-organisms should be used these five different types of microorganisms and have been selected to study of its cultural features.

TABLE

CULTURAL FEATURES OF MICROORGANISMS

Investigated microobjects	Characteristics of colonies growth in a Petri dish						
	shape and profile	size, millimeters	color	surface	shine and transparency	structure and texture	border
<i>Bacillus cereus</i>	compact, fold, hilly; curved profile	1; 1÷4	white	wrinkled with folded center	opaque, matt, moist	finely granular (farina-ceous); mucous texture	wavy, winding
<i>Diplococcus</i>	compact, round; convex or flat profile	1; 1÷3	peachy; produce orange pigment	smooth	opaque, brilliant, moist	homogeneous; soft texture	smooth, flat
<i>Sarcina lutea</i>	compact, round; convex or flat profile	1; 1÷3	citric; produce yellow pigment	smooth	opaque, brilliant, moist	homogeneous; soft texture	smooth, flat
<i>Pseudomonas fluorescens</i>	compact, round; convex or flat profile	1; 1÷2	grayish (dirty white) or without color; produce green-yellow fluorescent pigment	smooth	opaque, brilliant, moist	homogeneous; soft texture	smooth, flat
<i>Saccharomyces cerevisiae</i>	round; colonies in the deep have borders like crosses, which burst an agar; curved profile	1÷5	gray-white	hilly or slightly wrinkled	opaque, bright, sometimes matte	homogeneous; texture is oily (pasty) and thick	flat, sometimes wavy

The investigated pure cultures of microorganisms for the research were grown under the laboratory conditions in vitro on the nutrient agar medium with subsequent storage of cultures.

Cultural features of investigated colonies have been shown in Table, means character of colonies growth in Petri dishes on a nutrient medium.

### Conclusion

In this paper cultural features (characters of colony growth on the nutrient medium in the Petri dishes: colony form and profile, size, color, surface, shine and transparency, structure and consistency) of *Bacillus cereus*, *Diplococcus*, *Sarcina lutea*, *Pseudomonas fluorescens*, *Saccharomyces cerevisiae* are given.

### References

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