

MORPHOLOGICAL AND PHYSIOLOGICAL CHARACTERIZATION OF SPECIFIC MICROBIAL STRAINS ISOLATED FROM LIQUID SUBSTRATES

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Abstract

Extreme conditions effect the growth of microorganisms. The effect of high percentage of salt and high values also of osmotic pressure, caused by high percentage of sugars in selected samples, have been investigated during the experimental work here presented. So, waters from coastal towns and liquid pharmaceuticals with high percentage of carbon sources were used as important contributors for the isolation and identification of microbial strains with specific morphological and physiological characteristics.

These substrates were considered very important for the isolation of bacterial and yeast colonies including those of osmotolerants, osmophiles and pigmented.

Selected substrates were microbiologically analyzed and screening methods were used for obtaining a great number of bacteria, yeasts and molds. Microbiological evaluation was made in order to determine morphological and physiological characteristics of isolated and purified strains. Microbiological methods of analysis (Wickerham, Lodder and others) were used to observe how special conditions of development affect tendencies of sporulation, pseudo micelle formation, pigmentation and other morphological characteristics. Physiological characterization of isolated and purified cultures, including auxonographic methods of sugar assimilation was performed, in order to complete a database for each selected strain having as target to include them in a collection of industrial microorganisms and to use for the study of biomolecules derived from them.

120 microbial strains were screened, isolated and identified including pigmented bacteria as *Serratia marcescens* pigmented by a reddish-orange tripyrrole called prodigiosin and *Aureobasidium pullulans* yeast "like mold", pigmented in pink to brown and black.

As conclusions, some isolated bacterial strains were inhibited by 10% of salt and isolated yeast strains were inhibited in very high percentage of sugars above 50%. Isolated yeast strains were more tolerant toward salt percentages, applied during experiments. Bacterial sporulation, pigmentation and pseudo micelle formation of yeasts were depended by specific conditions caused by sugar and salt content.

Key words: *Liquid substrates, Osmophilic microorganisms, Morphological characteristics, Physiological characteristics.*