

**DETECTION OF MARKERS IN THE FAT-ACID
PROFILE OF *BACILLUS SUBTILIS* ONU551 -
DESTRUCTOR OF DISINFECTANTS**

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To increase the efficiency of the work of medical institutions and pharmaceutical production facilities, where a large number of phenolic and other hardly oxidizable compounds are found in the sewage waters, we recommend using strain *Bacillus subtilis* ONU551 (F13) to purify this kind of effluent. The strain was isolated in 2017 from wastewater produced by Ukrainian pharmaceutical products, and does not lose destructive properties with respect to aromatic xenobiotics in the presence of pathogenic microbiota - *E. coli*, *K. pneumoniae*, *S. moscow*, *P. aeruginosa*. The ability of the strain *B. subtilis* ONU551 to oxidize widely used disinfectants (phenol, N-cetylpyridinium chloride, etc.), as well as its lack of virulent and toxicogenic properties, makes it possible to use it in the biotechnology of wastewater treatment from aromatic xenobiotics. An assessment of the pathogenicity of *B. subtilis* ONU551 was carried out in vitro - on the model of human cell culture lines - Hep2 and RD and animals - L20B, and in vivo - in white laboratory mice. According to the fatty acid composition, the spectrum of which was obtained on the gas chromatograph Agilent 7890, and deciphered using the RTSBA6 6.21 library database of the Sherlock MIDI program, the investigated strain with a high similarity index was identified as *Bacillus subtilis* ONU551.

In the present work, a study of the details of the fatty acid composition at a level below 5% is undertaken to find specific chemicals for this non-pathogenic microorganism (markers) for possible detection in other sources of the environment (contaminated soil, sea water), and also for its subsequent use in the biopreparations on the basis of a synergistically active association of strains-destructors. A feature of the fatty acid profile of *B. subtilis* ONU551 is the presence on the chromatogram of a 16: 1 biomarker fatty acid strain w7c alcohol (with a molar fraction $w = 1.1\%$ of the total area of the peaks). To the biomarker fatty acids detected in a minor amount, also unsaturated long chain fatty acids of normal structure - 15: 1 w5c (1.9%), 16: 1 w11c (1.2%); and branched structure - 17: 1 iso w10c (3.2%). Biomarker should be considered as the ratio of fatty acids [15: 0 iso (34.7%) / 15: 0 anteiso (33.7%)] and [17: 0 anteiso (10.2%) / 17: 0 iso (7.1%)] in comparison with the content of fatty acids of normal structure: 12: 0 (0.4%), 14: 0 (0.3%), 16: 0 (1.3%). Analysis of the obtained chromatogram allowed to state that the strain of *B. subtilis* ONU551 is characterized by the saturation coefficient, which is 10.