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ABSTRACT

YEAST PATHOGENIC AND POTENTIALLY PATHOGENIC TO HUMANS ISOLATED FROM SANDY BEACHES USED FOR RECREATION

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Yeast has several unique environmental properties that allow them to colonize soil and sand. They can circulate seasonally between individual elements of the lake ecosystem, which include: beaches sand, water and coastal phyllosphere. Due to the relationship between human activity and water reservoirs, people should be considered as a potential yeast vectors. The people accumulation on the beaches promotes development and transmission of yeast, and causing a growing sanitary and epidemiological threat. The research aimed to determine the taxonomic and quantitative composition of the potentially pathogenic and pathogenic yeast population for human, present in the sand of supervised and unsupervised beaches and beach volleyball courts, located above municipal bathing areas, on the shores of lakes in the city of Olsztyn (north-east Poland).

The research material consisted of sand samples collected in the two research seasons (2018-1019; 2019-2020) from 12. research stands within sandy beaches of 4. lakes located within the administrative boundaries of Olsztyn. During the tests, standard insulation and identification methods used in mycological laboratories were used.

During the research, a total of 298 yeast isolates were obtained, among which 67 species belonging to 49. genera were identified. Among all isolates, 5 multi-species were found, and 11 were marked only to the genus due to insufficient data for full identification. Eight species were classified to the second biosafety level (BSL-2). The most live yeast cells were found in sand samples taken in July 2018-2019 (4.17×10^3 CFU/g), and August and September 2019-2020 (1.30×10^3 CFU/g and 7.30×10^2 CFU/g). The least in April, September and October 2018-2019 (1.04×10^2 CFU/g, 7.77×10^1 CFU/g and 1.09×10^2 CFU/g).

In this light, it is justified to carry out continuous sanitary and epidemiological monitoring of beach sand and beach volleyball courts as well as further research into its mycological purity, along with activities leading to the coverage of the above issues with appropriate legal regulations.