

The fungi present in the sand and soil of recreational areas as possible factors of fungal infection among children: hydrolytic enzymes – a determinant of pathogenicity

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The pathogenicity of fungi depends on, *inter alia*, the secretion of hydrolytic enzymes. The aim of this study was to determine the enzymatic activity of yeasts and yeast-like fungi isolated from children's recreation areas, and compare the results with literature data of strains obtained from patients with mycoses. The enzymatic activity of 96 strains was assessed using an API ZYM kit (bioMérieux, France) and their biotypes were established. The fungal species were found to produce from 16 to 19 hydrolases: the most active were: leucine arylamidase (e₅), acid phosphatase (e₁₀), alkaline phosphatase (e₁), naphthol-AS-BI-phosphohydrolase (e₁₁), esterase - C4 (e₂), b-galactosidase (e₁₃) and b-glucosidase (e₁₆). In addition, 13 biotypes characteristic of particular species of fungi were defined. Most strains could be categorized as biotypes C₂ – 39,5% and A – 26%.

The examined fungal strains isolated from recreational areas have selected biochemical characteristics i.e., production of hydrolases, which demonstrate their pathogenicity. They produce a number of enzymes which are also present in strains isolated from patients with mycoses, including: leucine arylamidase (e₅), acid phosphatase (e₁₀), naphthol-AS-BI-phosphohydrolase (e₁₁) and alkaline phosphatase (e₁). The biotypes identified in the course of this study (A, B₃, B₄, C₁, C₆ and D₃) have been also reported in cases of fungal infection. Therefore, the fungi present in the sand and soil of recreational have pathogenic properties and are possible factors of fungal infection among children.