

BIOLOGICAL SCIENCES

GENERAL CHARACTERISTICS OF MICROLOGICAL STATUS IN KINDERGARDENS (IN THE SAMPLE OF BAKU CITY)

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Abstract

The presented work is dedicated to analysis of micological status of kindergardens constructed in Baku City and mainly registered with the state. It was determined that micobiota formed in the interior environment of kindergardens consisted of 10 genes and 21 species 57% of which are the representatives of *Aspergillus*, *Penicillium* and *Cladosporium* genes. It was identified that dominant species of fungi are directly involved in the formation of dominant core of micobiota in the kindergardens. As well as it became known that almost all the fungi registered are mainly spread in the atmospheric air in rooms with different status. Its defined that conventional pathogenic fungi are easily adheded on the tender skin of kids and on ecological condition are quickly transforming to aggressive inflamors of invasive mycoses.

Keywords: Baku City, kindergardens, micological, status, micobiota, interior environment, rooms with different status, atmospheric air.

Introduction. Also the studies conducted show that urban environment is characterized more as the ecosystem subjected to antropogenous influence than anything else [7; 8; 9]. In antropogenic environments comparison of autotrophic and heterotrophic blocks demonstrates the more active position than the second ones. For the ability they can spread widely fast penetration, adaptation and powerful protein system, the study of micromycetes has become the central point for investigators [3; 4; 13]. Taking into account that microscopic fungi is one of the main components of antropogenic environments, especially of residential buildings, depending on disbalance of faktors they are rapidly transforming into potential infection originators, so at this moment it becomes clear to what extend the problem is of medical-social importance [1; 2; 11].

Objective. The aim of the presented work consisted of the study of dependences on real ecological condition of micological situation of kindergardens, especially being in state registration, functioning in Baku City.

Materials and methods. As the subject of the study 20 kindergardens were chosen from the 200 functioning under state registration in Baku City. In the registered kindergardens from different status rooms, also from the rooms as well where kids work, play, eat and rest, accordingly using the methods of sedimentation and application were taken samples and inoculated in mediums such as Capek, Capek-Dox. and Saburo. After that fungal colonies formed on Petri cups were analyzed as per cultural-morphological features and removed onto pure culture being identified. Its worth to note that the number of fungi spread both in oblique quantity of atmospheric layer and 1 gr. of applicative

material is expressed with CFU which shows the general growth [5; 6; 10; 12].

The obtained results and their discussion. Speeding up of the urbanization is observed by population growth, especially in central cities. The growth of population is evidently shown, especially in central cities. It should be noted that in urban environment the most part of lifetime of younger generation before school, as well as upbringing, nutrition, rest time etc, is spent in kindergardens. That is, recently growing demand for daycare resulted in remarkable increase in number of kindergardens being both in state and private registration.

During the studies held we came across such a fact that the kindergardens in Baku City are usually functioning either in single-storey buildings or on the first floor of residential buildings. While estimating the micological condition of kindergardens, first of all, the main focus lies on identification of variety of species and number composition of micobiota formalized in air space of rooms with different status where kids work, play, rest and, are fed. It became evident that the micobiota formalized in atmospheric air of inner environment of kindergardens consists of 10 genius and 21 species of micromycetes (table 1). As we can see from the table, the most species variation is shown in *Aspergillus* with 5 species, *Penicillium* 4 species, *Cladosporium* 3 species, *Mucor* and *Alternaria* lach 2 species, the rest of the species are represented by one specie.

We should note that according to analysis fulfilled on microsystem inhabited in kindergardens, the representatives of *Aspergillus*, *Penicillium* and *Cladosporium* consists 57% of the formed micobiota and demonstrates a dominant position. At the same time different species of the genus mentioned are also

characterized by frequency of detection and directly takes part in the organization of the dominant nucleus. Also almost all the fungi registered, as well as the species due to Zygomycetes and Ascomycetes classes are widely spread in air space in inner environments of kindergardens, As well this fact was also known that micromycetes which form aerogen microbiota of the rooms with different status of kindergardens are both the permanent inhabitants of soil environment and the acute contaminants of food products. Taking into account the existence of pathogenic and conventional

pathogenic representatives as well, among the micromycetes spread in inner environment of kindergardens, so its inevitable to say that they are potential originators of different mycotic diseases of either endogenous or exogenous character.

It was identified that in the kindergardens, as the originator of opportunist mycoses, the species *A. flavus*, *A. fumigatus*, *A. niger*, *A. versicolor* due to *Aspergillus* specie, *P. chrysogenum*,

Table 1

Species diversity of micromycetes spread in atmospheric air of kindergardens

Genus of fungi	Species of fungi
<i>Aspergillus</i> (1/5)	<i>Aspergillus flavus</i> Link, <i>A. fumigatus</i> Fresen; <i>A. niger</i> Tiegh; <i>A. ochraceus</i> Wilh, <i>A. versicolor</i> Tirab.
<i>Penicillium</i> (1/4)	<i>Penicillium brevi-compactum</i> Dierckx; <i>P. expansum</i> Link; <i>P. chrysogenum</i> Thom; <i>P. claviforme</i> Bainier.
<i>Cladosporium</i> (1/3)	<i>Cladosporium cladosporioides</i> de Vries C. herbarum Link.; <i>C. elatum</i> Nannf .
<i>Mucor</i> (1/2)	<i>Mucor circinelloides</i> Tiegh; <i>M. hiemalis</i> Wehmer.
<i>Alternaria</i> (1/2)	<i>Alternaria alternata</i> Keissl; <i>A. tenuissima</i> Wiltsh.
<i>Rhizopus</i> (1/1)	<i>Rhizopus arrhizus</i> Fischer.
<i>Oidiodendron</i> (1/1)	<i>Oidiodendron echinulatum</i> Bainier.
<i>Aureobasidium</i> (1/1)	<i>Aureobasidium pullulans</i> Arnaud.
<i>Paecilomyces</i> (1/1)	<i>Paecilomyces variotii</i> Bainier.
<i>Trichoderma</i> (1/1)	<i>Trichoderma. viride</i> Pers.

P. claviforme due to *Penicillium* specie, *C. cladosporioides*, *C. herbarum* due to *Cladosporium* specie, *P. variotii* due to *Paecilomyces* specie, *M. circinelloides* due to *Mucor* specie, *Rh. arrhizus* due to *Rhizopus* specie were widely spread. The species such as *Alternaria alternata*, *Aureobasidium pullulans*, *Trichoderma viride*, *Oidiodendron echinulatum* having pa characters can be come across in the kindergardens as well. The above mentioned fungi, especially conventional pathogenes, being easily adressed on the skin of the children with weakened immune system, who spend most part of their time in the kindergardens, are transformed into aggressive originators of invasive mycoses.

Conclusions. That's why in particular, atmospheric air of the kindergardens functioning on the ground floor of modern residential complexes or in the independent single-room buildings is potentially converted to the source of infection of mycotic diseases. So this highly increases the chances of the children with weakened immune system to be caught by allergy and mycotic diseases. So with the aim of health protection of kids its quite necessary to hold micological monitorings in the kindergardens located on the ground floor of modern residential complexes or in singleroom buildings with remarkably high humidity factors.

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