

increasing amount of humus and productivity of the soil. The results obtained by us are confirmed in similar works by other researchers. Our results indicate that the activity of peroxidase and polyphenoloxidase is inversely proportional. It was clear that the activity of peroxidase and polyphenoloxidase determine the direction of the process of humus becoming. Similar studies conducted on winter soil samples. It was shown that the amount of humus in the soil samples of the summer season is more, the activity of peroxidase and polyphenoloxidase is high. Plants vegetation activity in summer creates favorable conditions for the growth of microorganisms. In the aerobic favorable conditions is on humification of plants' remains and increase polyphenoloxidase activity.

Along with the study of soil enzymes, 150 strains belonging to the genera *Absidia*, *Rhizopus*, *Mucor*, *Geotrichum*, *Aspergillus*, *Paecilomyces*, *Spicaria*, *Penicillium*, *Gliocladium*, *Fusarium*, *Alternaria*, *Stenophyllum*, *Cladosporium* were isolated from the plant residues, tree roots and investigated 8 soil types of Azerbaijan. Using the method of color reactions, primary screening was carried out among the isolated strains of fungi. As shown by screening, the greatest number of active strains were isolated from the plant residues. Active strains belong to the genera *Alternaria*, *Cladosporium*, *Geotrichum* and *Penicillium*.

Ivakhnyuk T.V.¹, Molozhavaya O.S.², Makarenko A.N.³

CHARACTERISTICS OF LACTOBACILLUS SPP. AND BIFIDUMBACTERIUM SPP. ISOLATED FROM PATIENTS WITH ALZHEIMER DISEASE

¹Sumy State University;

²Taras Shevchenko National University of Kyiv;

³Interregional Academy of Personnel Management

tvakhnyuk@gmail.com

To date, the study of the relationship between the intestines and the brain, the so-called gut-brain axis, through which the brain carries a modulating effect on the function of the digestive tract, and the latter - on the contrary, regulates the permeability of certain substances through the mucous membrane of the intestine is relevant.

The aim of the work was to study the adhesive properties of gut indigenous microbiota of patients with Alzheimer's disease (AD). The intestinal microflora of 16 patients with AD was studied. The cellular substrate for the study of adhesive activity were formalized human erythrocytes of 0 (I) Rh (+) group.

When analyzing the results of microbiological examination of feces from patients with AD, it was found that in 37.4% of cases registered dysbiosis of the

first degree; in 31.3% - the second degree and 31.3% - the third degree. The amount of *Lactobacillus spp.* and *Bifidumbacterium spp.* was significantly decreased ($p < 0,05$) compared with the control group - elderly people of $75 \pm 0,9$ years old. The increased levels of *Lactobacillus spp.* ($\lg 4.48 \pm 0.15$ CFU / g) was registered in patients with AD with a third degree of dysbiosis, and decreased levels of *Bifidumbacterium spp.* ($\lg 3.7 \pm 0.2$ CFU / g) - in patients with II degree of dysbiosis -

Results of the study of adhesive activity of strains *Bifidumbacterium spp.* and *Lactobacillus spp.*, isolated from patients with AD showed that 83.3% and 60.0% of *Lactobacillus spp.* isolated from patients with I and II degree of dysbiosis showed a high and average adhesive activity; 80% of *Lactobacillus spp.* isolated from patients with the third degree of dysbiosis showed low adhesive activity (1.72 ± 0.08).

When cultivating *Bifidumbacterium spp.* and *Lactobacillus spp.* in hydrolyzed milk as a monoculture (pH 7.2; 37° C), the adhesive properties of low-adhesion strains was significantly increased ($p < 0.05$) compared with the previous results.

These studies of the antagonistic activity showed the possibility of using *Bifidumbacterium spp.* and *Lactobacillus spp.* strains in the form of an autobiotic and is a good way to develop a personalized drug for correction of gut dysbiosis in patients with AD.

Ivakhnuk TV, Makarenko OM, Molozhavaya OS.

Characteristic of *Lactobacillus spp.* and *Bifidumbacterium spp.* isolated from patient with Alzheimer disease.

III International scientific conference: Microbiology and immunology - the development outlook in the 21st century.

April 19–20, 2018. Kyiv: Taras Shevchenko National University of Kyiv. 2018; 48-9.