

Veronica Kabashna
O.S. Kovrov, research supervisor
S.I. Kostrytska, language adviser
SHEI “National Mining University”, Dnipropetrovsk

Biological Safety Issues

Nowadays issues of biological safety are very important. There are a number of problems which need to be prevented in this respect.

Biological safety is the inherited characteristics of living organisms to preserve their biological integrity and vital functions of all types of cells and tissues as separate parts of the whole organism under the constant influence of external and internal ecological factors.

In the conditions of changing environment the biological safety of living object can be violated by large-scale loss of biological integrity as a result of the following factors:

- intrusion of alien life forms inside the stable biological system or ecosystem;
- intrusion of viruses or transgenic forms of life, for example prions, inside living cells;
- contamination of food by dangerous bacterial strains;
- water pollution and soil contamination in natural ecosystems etc.

Environmental challenges include:

- infectious diseases;
- the problem of genetically modified food;
- biocatastrophes;
- bioterrorism;

Some of these hazards may pose serious risks to public health, such as salmonella in poultry, listeria monocytogenes in milk, meat and fish products, biotoxins in live mollusks, trichinella in pigs and BSE in cattle.

The problem of genetically modified products is very actual because of mutations and genetic changes in the cells of living organisms. Genetically modified food is produced by inserting the genetic material (DNA) from one species to another, with the techniques of genetic engineering.

Biocatastrophes originate from natural factors that people cannot control but a human factor strengthens negative environmental impact.

Bioterrorism is intentional covert use of biological agents with the purpose of destruction of people and psychological impact on the population. An example of a bioterrorist act is the outbreak of Anthrax diseases in the United States in 2001.

Every day species die on our planet, and new bacteria and viruses with changed characteristics appear, increasing the level of biological danger. Therefore, the biological safety issues remain the most considerable in the range of environmental challenges.