

NATURE HELPS US TO CLEAN AIR, SOIL, WATER AND ... DO THE LAUNDRY

Environmental biotechnology is a field with great potential. Biotechnologists are increasingly learning how to apply the knowledge about biological metabolic processes in the field of environmental protection, including waste management and environmental rehabilitation.

There are many examples of areas where environmental biotechnology can be applied.

Wastewater treatment plants are nothing without bacteria. These invisible organisms put their metabolism to good use in the purification of polluted wastewater.

Biotechnology has also proven useful for the remediation of contaminated soils. For example an *in situ* technology has been developed where naturally occurring soil microorganisms can be activated to degrade mixtures of toxic substances.

Biosensors used for the detection of harmful substances in water, air and soil are the key tools of environmental biotechnology. Researchers are developing systems based on microorganisms or enzymes that can help indicate environmental toxins.

Novel, precise and inexpensive methods are being developed to monitor air contamination, especially by heavy metals.

Saving raw materials and resources is another form of environmental protection. The importance of biotechnology in the area of renewable fuels will increase significantly over the next few years, for example with regard to the production of bulk chemicals, which up until now have been produced using petrochemical manufacturing methods.

The production of bio surfactants used in washing agents and soap is another area where biotechnological methods are used. The application of enzymes isolated from extremophilic microorganisms might also lead to a reduction in energy consumed. Washing agents containing such enzymes can be used at lower temperatures and help save electricity.

1 Choose the correct meaning of these words underlined in Nature helps us to clean air, soil, water and... do the laundry.

- a. *field*
 1. area of land; 2. range of interest and action
- b. *management*
 1. board of directors; 2. organization and control
- c. *rehabilitation*
 1. medical treatment to restore health; 2. restoration of the previous conditions
- d. *areas*
 1. extent of surfaces; 2. ranges of activity
- e. *purification*
 1. removal of harmful substances; 2. removal of dirt

- f. *remediation*
 - 1. cleaning up of a contaminated area; 2. correction of an error
- g. *detection*
 - 1. discovery of the presence; 2. investigation of a crime
- h. *key tools*
 - 1. tools to lock and unlock doors; 2. very important tools
- i. *monitor*
 - 1. make continuous observations; 2. view on the computer screen
- j. *heavy metals*
 - 1. metals of great weight; 2. pollutant metals
- k. *raw materials*
 - 1. uncooked materials; 2. unprocessed materials
- l. *bulk chemicals*
 - 1. chemicals produced in large quantities; 2. very large chemicals
- m. *washing agents*
 - 1. people helping with the washing; 2. substances used to do the washing
- n. *extremophilic microorganisms*
 - 1. extremely active microorganisms; 2. microorganisms active at extreme temperatures

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Answer these questions about Nature helps us to clean air, soil, water and ... do the laundry.

- a. What microorganisms are used to purify polluted wastewater?
- b. How can soil microorganisms be used in soil remediation?
- c. What are biosensors used for?
- d. How can environmental toxins be detected?
- e. How can enzymes in washing agents help save electricity?