

# Funghi

## Man and fungi

### Pharmaceutical uses

From a pharmaceutical point of view, mushrooms are extremely interesting. Fungi have recently helped to produce other innovative and important drugs, such as cyclosporin, an anti-rejection substance that has aided the development of organ-transplant surgery over the last few years. Penicillin, the first antibiotic ever, is made from a fungus of the genus *Penicillium*, a green mildew, belonging to deuteromycetes. Fungi produce a wide variety of substances that are not only important for the human organism. An ascomycete, *Giberella Fujikuroi*, can secrete a plant-growth hormone known as gibberellin.

### Lichens

Lichens are ecologically important because they are sensitive to the atmospheric pollutants, and this is why they are called **bio-indicators**. The presence of some substances, such as sulphur dioxide, in the air produces changes in the growth of the lichen. The quality of the environment can be assessed by studying the growth of these organisms. Lichens are organisms that colonise an environment that has just settled. They are therefore the first organisms that we can find, for instance, on the rocks of a landslide or, on the mountains, on the rocks left behind by a withdrawing glacier. With time, lichens grow steadily and by studying their size one can determine the year in which the landslide fell or the rocks were left behind by the glacier. These dates are useful to the geologists to reconstruct historical events, to study and gain an insight of the surrounding environment. Many study projects on the movements of Alpine glaciers also rely on this dating system

### Let's discover Penicillin

In the early 20th century, the micro-organisms that cause the most important infectious diseases in man had already been discovered. Up to that time, the control of the spread of such diseases relied on prevention, in the form of vaccines (against smallpox, rabies and anthrax) and disinfectants. Chemicals, such as antibiotics, that could kill the micro-organisms without damaging the infected individual, began to be discovered and used. In 1926, Alexander Fleming found a mildew (*Penicillium notatum*) in a culture of Staphylococci. He noticed that the area of the culture medium near the fungal colony was completely free of staphylococci. Through some tests, he found out that mildew was an excellent bacterial inhibitor and at the same time it was not toxic on the test animals. Penicillin was then purified before it could be used on man. This substance is still one of the best and widespread antibiotics for the treatment of many infectious diseases of bacterial origin.