

SOME PLANTS ARE CARNIVOROUS



This plant lives on swamp and fishes insects using sticky leaves.

The bodies of dead plants and animals, their excreta, and their discarded leaves and exoskeletons all return nitrogen to the soil, where a portion of this precious commodity is lost. The loss is serious. Nitrogen makes up 77 percent of the air around us but less than 1 percent of an average plant. Moreover, neither plants nor animals can extract nitrogen from the atmosphere. Only a very few species of bacteria can «fix» nitrogen gas (N_2), converting it to compounds that can be taken up by the roots of plants. If these bacteria were to cease operations, there would, eventually, be no more proteins, no more nucleic acids, no more life on Earth.

Plants compete for the available nitrogen in different ways. Many species, particularly members of the legume (pea) family, enter into partnerships with nitrogen-fixing bacteria. Many more species enlist the aid of various fungi, taking advantage of their abilities to break down complex molecules into simple ones. A few species capture and devour animals.

One such carnivorous plant is *Drosera rotundifolia*, the common sundew. Each plant has six to twelve modified leaves arranged in a rosette. Each leaf has as many as 260 fine filaments protruding from it (Charles Darwin counted the number of filaments on sundew on the heath in Sussex). At the tip of each filament is a minute,

globe-shaped gland that secretes a sticky fluid. The fluid droplets gleam in the sunlight, as the plant's name suggests, and the leaves give off an enticing odour.

Once an insect alights on one of a sundew's shimmering leaves, it cannot escape (figure). First one leg and then another becomes trapped on the gluey glands. Neighbouring filaments, each with its sticky droplet, fold slowly in towards the captive. Soon its body is immersed in a colourless mucilage, its air passages fill up, and it suffocates. The glands then secrete a «ferment», to use Darwin's term, that digest the captive. By this means, he noted, the sundews «often grow in places where hardly any other plant... can exist».

Leggi attentamente il testo e rispondi alle domande che seguono.

- A** Which species can fix nitrogen gas?
- B** Who counted the filaments on sundews, and where?