



Photo: MPI for Chemical Ecology/Anna Schroll

## Eternal Summer

Even on cloudy days, the sun shines in the greenhouse of the Max Planck Institute for Chemical Ecology: 520 high-pressure lamps with assimilation sodium vapor bulbs ensure that the plants have sufficient light and that the spectral distribution is right for photosynthesis. To simulate uniform irradiation, the lamps move back and forth automatically on tracks. The air conditioning is also computer controlled: temperatures remain at summer levels – but not too high – all year round.

Half of the 474-square-meter cultivation floor is usually sown with coyote tobacco (*Nicotiana attenuata*), a species of wild tobacco and the institute's most important model plant. Along with rapeseed and pea plants and poplars, the greenhouse also boasts some more exotic inhabitants: pest-resistant bananas, noni trees and carnivorous pitcher plants. The latter are the main focus of interest for researcher Ayufu Yilamujiang. He studies the exact composition of the digestive fluid with which the plant digests the trapped insects.

Carnivorous plants grow in low-nutrient soils and obtain additional nutrition from their animal prey, mainly insects. To this end, they have developed special trapping and digestive mechanisms. In the case of the pitcher plant, sweet nectar lures the insects to the edge of the pitcher, which is basically formed from reshaped leaves.

The animals slip off the edge of the pitcher and fall into the digestive fluid. The pitcher plants also find the occasional prey in the greenhouse, as parasites or beneficial organisms used to combat these – ichneumon wasps, for instance – occasionally fall victim to them. For experiments carried out under controlled conditions, the scientists feed the pitcher plants with fruit flies.