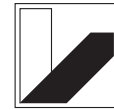


BayCEER Kolloquium

Lectures in Ecology and
Environmental Research

WS 2021/22



UNIVERSITÄT
BAYREUTH

Donnerstag/Thursday

21.10.2021

12:15 in H8, GEO



Dr. Vincent Merckx

Research Group Leader Understanding Evolution,
Naturalis Biodiversity Center, Leiden, Netherlands

Mycoheterotrophy: an uncharted carbon flux in the plant world

Plants need sunlight, water, and soil nutrients to grow. A part of the carbon produced by photosynthesis in the foliage is transferred to root-associated 'mycorrhizal' fungi, which help plants to take up nutrients and water from the soil. This carbon can be subsequently taken up by non-green plants that tap into the same fungal network: fully mycoheterotrophic plants. Although fully mycoheterotrophic plants represent only a tiny fraction of plant diversity, they demonstrate that carbon uptake from mycorrhizal fungi is a successful plant strategy to thrive in low light conditions. Indeed, some relatives of fully mycoheterotrophic plants are partially mycoheterotrophic: they can combine autotrophy and mycoheterotrophy when light or seed reserves are insufficient for growth. We currently assume that up to 9% of all plant species are capable of some form of mycoheterotrophy (mostly orchids). However, based on recent isotopic evidence a new form of partial mycoheterotrophy has been discovered, which advances the hypothesis that an additional 35% of land species are capable of mycoheterotrophy and can survive in low-light habitats by receiving carbon from root-associated arbuscular mycorrhizal fungi.

