

Experimentelle Belege für fakultativen Nekrotrophismus bei dem hexenringbildenden Basidiomyceten *Lepista nuda* (Bull. ex Fr.) Cke.

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Abstract: With a yield output of 0.3 to 5.5 kg per m² on composted manure in air-conditioned growth chambers, *L. nuda* exhibits its ability of a sheer saprophytic growth. The fungus' susceptibility to ecological factors expresses itself in an acceleration of the outset of fruiting in co-culture with certain herbs, in stimulated and retarded mycelial growth, respectively, in the root zone of legumes and grasses, as well as in a sensitive reaction to volatile emanations such as CO₂ and allelopathic exhalations of both sound and decaying cover plants, volatiles that dominate mycelial growth in edaphosphere soils of natural turfs. In 2-l glass trials, the subsoil type Q was grafted with 12 samples of natural turf pieces that stocked on different basic soils. While the *L. nuda* mycelium inserted did not invade more than 10% of the subsoil, an extended mycelial spread was recorded in the root-soil zone as well as in the decaying grass layer of 10 of the 12 turf samples. In the autumn, the cover plant population was weakened by reduced illumination and temperature as well as by increased atmospheric humidity. These changes promoted the invasion and subsequent digestion of living plant material by the *L. nuda* mycelium. A high degree of susceptibility was typical of bryophytes and monocots, whereas certain dicots proved to be more resistant. In a comparative trial with the plant-free basic soils, 1 to 4 of 21 samples allowed for lasting and extended mycelial growth while 13 of 21 soils were near-fungistatic. Surprisingly, some pronounced fungistatic soils could not prevent the *L. nuda* mycelium to extensively invade the corresponding natural turf. Consequently, no relationship was found between the character of mycelial development and factors such as the amount of decaying plant residues in the turf, the pH value of the basic soil, its humus content, NPKMg content or the soil respiration as a measure of total microbial activity. It is concluded that in congruence with the conditions observed in natural fairy rings, the non-amended subsoil is a poor nutrient basis for *L. nuda* mycelium. While under normal climatic conditions the mycelium feeds on the root-soil zone and the layer of dead plant material, the climatically weakened autumnal plant cover is increasingly susceptible to invasion by the facultatively necrotrophic parasite, *L. nuda*. The pretended resistance of 2 of 12 natural turfs, or 13 of 21 plant-free basic soils may be caused by soil constituents not recorded in the common routine analysis. These compounds may favour an antagonistic, but not particularly excessive, microflora to inhibit development of *L. nuda*. Moreover, these compounds in quest may not be truly fungistatic as their effect vanishes by soil sterilization.

Zusammenfassung: Mit seinem Ertrag von 0,3 bis 5,5 kg/m² auf kompostiertem Stallmist in klimatisierten Kulturräumen beweist *L. nuda* seine Fähigkeit zu rein saprophytischem Wachstum. Seine Empfindlichkeit gegenüber ökologischen Faktoren zeigt sich bei der frühzeitigeren Fruchtkörperbildung in der Co-Kultur mit einigen grünen Pflanzen, im stimulierten bzw. gehemmten Myzelwachstum in der Wurzelzone von Leguminosen und Gramineen sowie in der empfindlichen Reaktion auf flüchtige Substanzen wie CO₂ und allelopathische Ausdünstungen gesunder wie verrottender Pflanzen der Grasnarbe; Substanzen,

