

Effects of pathogen on clonal plant *Vinca minor*

Tomáš Koubek¹ (tomas.koubek at gmail.com), Petr Dostál², Tomáš Herben^{1,2}

¹ Department of Botany, Faculty of Science, Charles University in Prague ² Botanical institute, Academy of Science, Průhonice

What are the interesting questions in:

Ecology of host–pathogen interactions

- evolution of aggressiveness of pathogen
 - effect of pathogen on fitness
- host resistance and pathogen virulence
- metapopulation dynamics of pathogen

Clonal plants ecology

- selection on ramet and genet levels
- vegetative vs. generative reproduction
- translocation and division of labour
- information spread through spacers



Puccinia cribrata

Ecology of pathogen + clonal plants

- escape strategies of clonal plant (growth, splitting)
- simultaneous pathogen spread and translocation through spacers – selection for and against clonality
- different evolutionary pressures of pathogen on ramet and genet level



Vinca minor

infected plants:

- clumped
- short spacers
- vertical growth
- yellow leaves
- production of teliospores only (microcyclic)
- rust detectable by staining or by ITS rust markers



healthy plants:

- long spacers
- horizontal growth
- clonal identity hard to acquire, SSRs would be ideal
- in some „healthy“ plants we detected the rust as well (!!!)

What are the possible study questions?

- What is the effect of the infection on ramet performance and survival, spacer growth and vegetative reproduction, translocation, generative reproduction?
- How does the effect on ramet level translate to genet level? ... This is most intriguing question, but we don't know, if it is even possible to get such a data?
- How fast does the mycelium grow? Can the plant outgrow the infection? How often infections by spores occur? How are the infected asymptomatic ramets behaving? Do healthy plants in populations with and without infection differ in clonal and other traits?
- What parameters of the populations determine the incidence of the pathogen? Do the populations differ in resistance? Is there any metapopulation structure of resistance or incidence?
- All advices and suggestions are welcome!!



Slovenian mountains



transferred infected plant