induce micro-climatic and environmental conditions suitable for the development of fungal pathogens on olive trees. Moreover, in the last years the quarantine pathogen *Xylella fastidiosa* is causing the Quick Decline Syndrome of olive trees in wide areas of Salento, with a rapid dieback of twigs and branches followed by death of the entire tree. The co-occurrence of fungal pathogens together with *X. fastidiosa* has been reported as con-cause of the olive decline. We have been isolating two hundred ninety-five fungal strains from trunks, branches, twigs, bark and root of both symptomatic and asymptomatic olive trees, grown in Salento. Based on similar morphological traits, we grouped the fungal strains and 75 representative ones were molecularly characterized by sequencing a partial region of the two informative *β-tubulin* and *actin* genes. Blast analysis assigned the fungal strains to 15 genera, most of which include species associated to olive tree dieback: *Alternaria*, *Arthrinium*, *Chaetomium*, *Cladosporium*, *Colletotricum*, *Diplodia*, *Epicoccum*, *Fusarium*, *Neofusicoccum*, *Paraconiothyrium*, *Phaeoacremonium*, *Phoma*, *Phomopsis, Pleurostomophora*, *Trichoderma*. Further analyses, including the sequencing of ITS region, are currently in progress to identify all strains at species level and assess phylogenetic analyses according with a multi-locus gene sequence approach.

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Young students and plant health: bringing to the light the environmental protection issues

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Young students can act, even if with modest impact, as multipliers for the environmental education activities, transmitting the knowledge acquired about environmental issues to their grandparents, parents and peers. In order to achieve its objectives, the research must open its doors to both children and teachers, giving them the opportunity to directly observe the activities developed by the researchers in up-to-date facilities. A work-related learning national programme helps research centres and departments to involve secondary schools and improve their awareness regarding plant health. More students needed to approach scientific disciplines, often seen as difficult and not entertaining. Particularly, initiatives for attracting more women in science, with special reference to plant pathology, must be mentioned. Plant health is a key factor to reduce hunger and rural poverty. Over the last years, about 3,000 children were educated and 200 young students from secondary schools spent their work-related learning programme in the field of plant pathology. At Agroinnova the experience gained with them convinced us that it is possible to communicate, with the adequate language and activities, the research done in an agricultural research centre to a young audience. The research community at large, including plant pathology, is facing more challenges with limited human resources and funding available. Young people are, in general, capable of understanding the objectives and motivations of the research. They help to bring to the light some misconceptions about agriculture that could otherwise pass unnoticed.

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Influence of CO_2 and temperature on the *Blumeria graminis* f. sp. *tritici*wheat pathosystem

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The combined effect of different temperatures and CO_2 levels was estimated on the *Blumeria graminis* f. sp. *tritici* (*Bgt*)/wheat pathosystem. *Bgt*-inoculated and healthy plants were exposed under phytotron conditions to six CO_2 and temperature combinations: (1) 450 ppm CO_2 (ambient CO_2) + 18-22 °C (low temperature), (2) 850 ppm CO_2 (elevated CO_2) + 18-22 °C (low temperature), (3) 450 ppm CO_2 (ambient CO_2) + 22-26 °C (medium temperature), (4) 850 ppm CO_2 (elevated CO_2) + 22-26 °C (medium temperature), (5) 450 ppm CO_2 (ambient CO_2) + 26-30 °C (high temperature), and (6) 850 ppm CO_2 (elevated CO_2) + 26-30 °C (high temperature). *Bgt*/wheat pathosystem was evaluated by measurement of different fungal and plant parameters such as disease index, fungal DNA quantity, pathogenesis-related (PR) gene expression, plant death incidence, chlorophyll and carbohydrate content. Powdery mildew progress was influenced significantly by both CO_2 and temperature, and their interaction. The most favorable conditions for the powdery mildew development on wheat were low temperature and ambient CO_2. Although high CO_2 did not favor disease development, it affected the plant vitality. Pathogen growth was strongly inhibited by elevated temperatures with both CO_2 conditions, and typical disease symptoms could not be observed. The PR transcripts showed different levels of expression between six phytotron conditions. Real-time PCR quantification permitted a sensitive pathogen detection at the early stages of the disease. This study suggested that Mediterranean area with average warming increase might result in lower incidence of wheat powdery mildew, unless the pathogen would adapt to elevated temperatures.

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Pythium spp. in vegetable crops: genetic diversity and sensitivity to mefenoxam and azoxystrobin

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Recently, severe yield losses caused by *Pythium* spp. were observed in Italy on lettuce, lamb's lettuce, spinach, and bean crops. *Pythium* diseases are mainly controlled by two fungicides classes, phenlyamides and QoIs, with mefenoxam and azoxystrobin as representatives, respectively. The present study aimed to estimate the sensitivity profiles of six *Pythium* species to mefenoxam and azoxystrobin, and their genetic diversity by ITS, RNA polymerase I and cytochrome b gene sequences. For mefenoxam, the inter-species sensitivity was quite variable and many resistant isolates were observed in all *Pythium* species, but without RNA polymerase I polymorphisms. For azoxystrobin, inter- and intra-species sensitivity was quite stable, with exception of one *Pythium paroecandrum* isolate, which