**Offer of the PhD study for the MSc graduate students of biology and agriculture**

Bohdan Lojka (Czech University of Life Sciences Prague) with the cooperation of Robert Bradley (University of Sharebrook, Canada) are looking for new phd student with biological or agricultural background for the research entitled:

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| **Topic:** | **Would planting trees in the agricultural landscape improve soil health trough Arbuscural Mycorrhizal Fungi (AMF)?** |
| **Study Programmes:** | Tropical Agrobiology and Bioresource Management  |
| **Supervisor:** | doc. Ing. Bohdan Lojka, Ph.D. |
| **Supervisor-consultant:** | Prof. Robert L. Bradley, Ph.D., University of Sherbrook, Canada |
| **Prospective funding**: | University of Sharebrook, Canada |
| **Annotation:**(150-200 words recommended) | *Brassica rapa* is a major oilseed crop in both the whole Northern Europe, but also Northern U.S and Canada. Distinguishing features of *B. rapa* are its non-mycorrhizal roots and tissues that contain glucosinolates. Both of these features, combined with continuous monocropping, are expected to decrease the abundance of arbuscular mycorrhizal fungi (AMF) in soil because: (1) AMF are obligate symbionts and, therefore, cannot grow and multiply in the absence of a host plant, and (2) glucosinolates that are released in soil may be catabolized to produce fungitoxic derivatives. While a decrease in AMF abundance should not pose a problem for *B. rapa*, it is expected to induce stress in other mycotrophic crops grown in rotation with *B. rapa* (e.g. barley or wheat). In fact, most agronomic crops rely on the AMF symbiosis to enhance nutrient uptake, drought resistance and protection against root pathogens. Several fast-growing trees, such as poplars (*Populus* spp.), also form symbiotic associations with AMF. We hypothesize, that if intercropped with *B. rapa*,poplars roots could maintain a long-term presence of active AMF biomass. Hence, poplar roots could provide a “nursery” of AMF inocula in soils for mycotrophic crops grown in rotation with *B. rapa*. The research will attempt to demonstrate these phenomena through a series of field, microcosm and laboratory studies. The results are expected to provide strong science-based arguments for the implementation of tree-based intercropping systems in temperate climates. |

We look for enthusiastic, hard-working, competent and motivated student. We offer competitive financing of the student and possibility of internship at the Sharebrook University in Canada.

For more information please contact: Bohdan Lojka, lojka@ftz.czu.cz , 734170763

Application trough <https://www.ftz.czu.cz/en/r-9420-study/r-9505-study-programmes/r-10477-phd-doctoral-degree-programmes/r-10478-tropical-agrobiology-and-bioresource-management>