



Dept. of Soil and environment  
Dept. of Forest mycology and plant pathology

## Minor Field Study/MSc thesis

### Allanblackia – a tree crop under current domestication: What are the soil requirements and important symbionts?

**Subject:** Soil science, Environmental science or Biology

**Level:** D, E

**Credits:** 30 HEC

#### **Background:**

In Sub-Saharan Africa, smallholder farmers largely depend on the use of locally available natural resources for the subsistence farming system. For the establishment of economically profitable systems, development of new farming strategies is required.

As an example, Allanblackia trees produce seeds containing high-value oil which is used in cooking in tropical Africa. Traditionally, seeds have been collected from wild Allanblackia stands, but this strategy is no longer sufficient because the oil has received great interest from the food industry. To ensure availability and sustainability of Allanblackia products, the World Agroforestry Center (Nairobi, Kenya) launched a research program in 2002 aiming for the domestication of Allanblackia tree species on smallholder farms. Up to now, research activities have focused on the selection of highly productive plant materials and propagation methods. Work is now carried out on the management of Allanblackia seedlings at the nursery and preliminary results show that incorporating soil collected under Allanblackia trees in the potting medium enhances growth of seedlings, indicating positive plant-microbial interaction. However, it remains to clarify which organisms are involved. To fully optimize the harvest potential of domesticated Allanblackia, soil (and water) requirements of the trees also must be met, but very little is known on this today.



Allanblackia fruit

#### **Study:**

We are looking for two MSc students who will i) characterize sites of native Allanblackia stands with respect to soil chemical and physical properties (such as soil pH, major plant nutrients, soil organic carbon, soil texture, bulk density, water holding capacity) and available climatic data to give first information on the trees' chemical and physical requirements, and ii) search for potential mycorrhizal symbionts of native Allanblackia stands, isolate and identify these, and assess the potential for specific inoculation in the nursery. The work will be carried out in collaboration with SLU and the World Agroforestry Centre, Kenya and Ghana. The field work is suggested to take place in Ghana and the laboratory work will be carried out at SLU. The students will be expected to apply for MFS grants to cover travel costs and field expenses.

#### **Contact persons:**

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