Project Update: December 2021

Summary

This report is an update on the activities conducted from November 2020 to June 2021. The project seeks to promote the sustainable conservation of the rare, endangered and endemic *Thunbergia atacorensis* (Acanthaceae) through research, environmental education and planting in Benin. It has three specific conservation actions, namely: (1) identification of the best propagation techniques through evaluation of the effect of different environment-friendly seed priming treatments on the germination and growth performances; (2) environmental awareness raising among the target community to encourage the involvement of local communities in the conservation of the species; and (3) Planting out of seedlings in schools and other public institutions in the target community to promote the conservation and sustainable use of the species.

Work report

- **Propagation tests**

Expeditions were conducted in November 2020 and May 2021 to collect seeds and rhizomes from the six populations of *T. atacorensis* identified in the Atacora mountain chain in Benin. Due to the low population size of the species and the unprecedented low production this year, only four populations (provenances) were sampled for seed and rhizome collection. Afterwards, seed germination and vegetative propagation experiments were performed. The experiments were conducted from January to July 2021 in the screenhouse of the Laboratory of Applied Ecology, University of Abomey-Calavi. A factorial design with two factors (rhizome treatment and provenance) and three replications was used for the vegetative propagation test. The rhizome treatments assessed were (i) without roots and (ii) with roots.

Figure 1. Collected rhizome samples stored in envelopes to prevent desiccation (**Left**) and *Thunbergia atacorensis* fruits (**Right**).

Figure 2. *T. atacorensis* seeds (**Left**) and filling of planting pots with soil (**right**)

Figure 3. Lay-out of the vegetative propagation trial

Figure 4. Sprouting plants from the rhizome cuttings

- **Preliminary results**

The preliminary results from the trial show a good recovery rate from the rhizome cuttings, although the rates varied among provenances and between rhizome treatments. Koubirigou provenance exhibited the highest rhizome cutting recovery rate (72%), while the lowest rate (19%) was obtained for Tetchebini (Figure 5). This follows a generalised linear model (GLM) analysis that was used to test for differences in rhizome cutting recovery rates among provenances, and between rhizome treatment (results were significant at 5% of probability level).

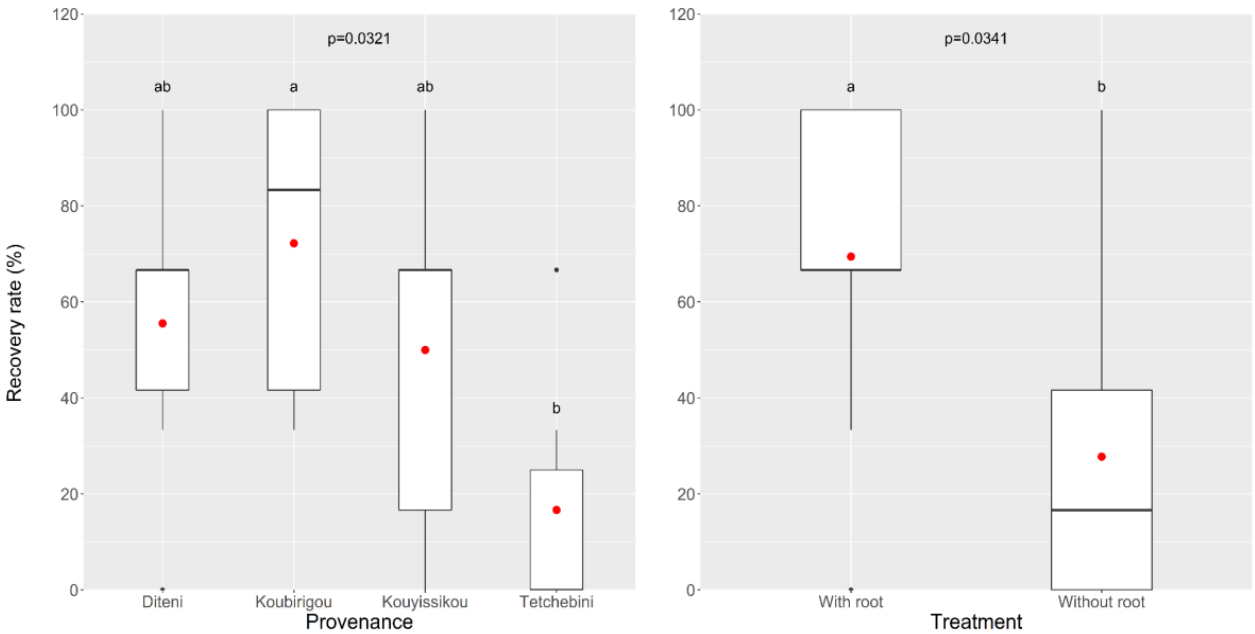

Figure 5. Variations in rhizome cutting recovery rates by provenance and rhizome treatment for *T. atacorensis*

The analysis of the growth dynamics of five plant parameters over time revealed that neither the rhizome treatment (Figure 6) nor the provenance (Figure 7) affected any of the considered plant growth parameters ($p>0.05$).

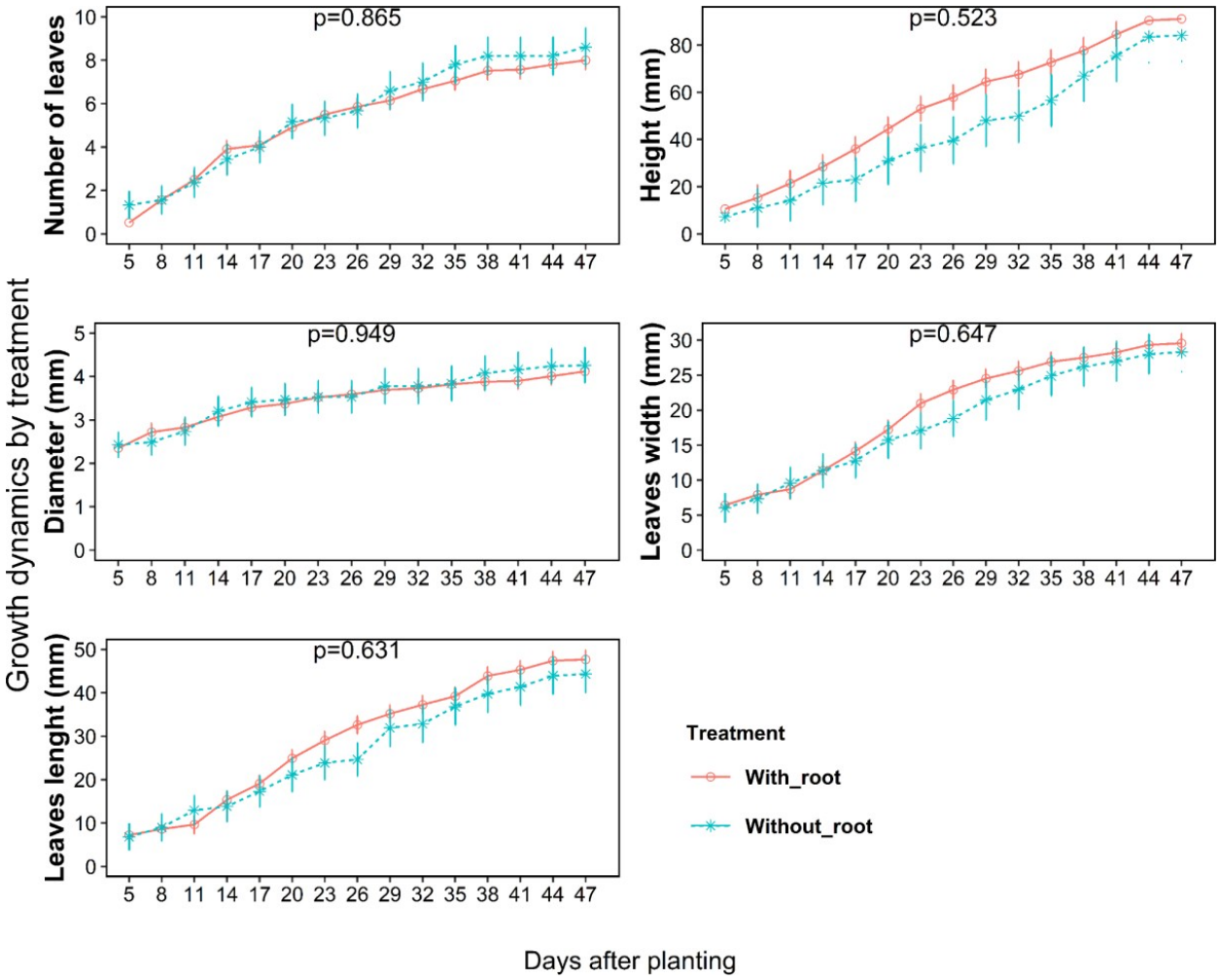

Figure 6. Dynamics of five growth parameters of *T. atacorensis* according to rhizome treatment.

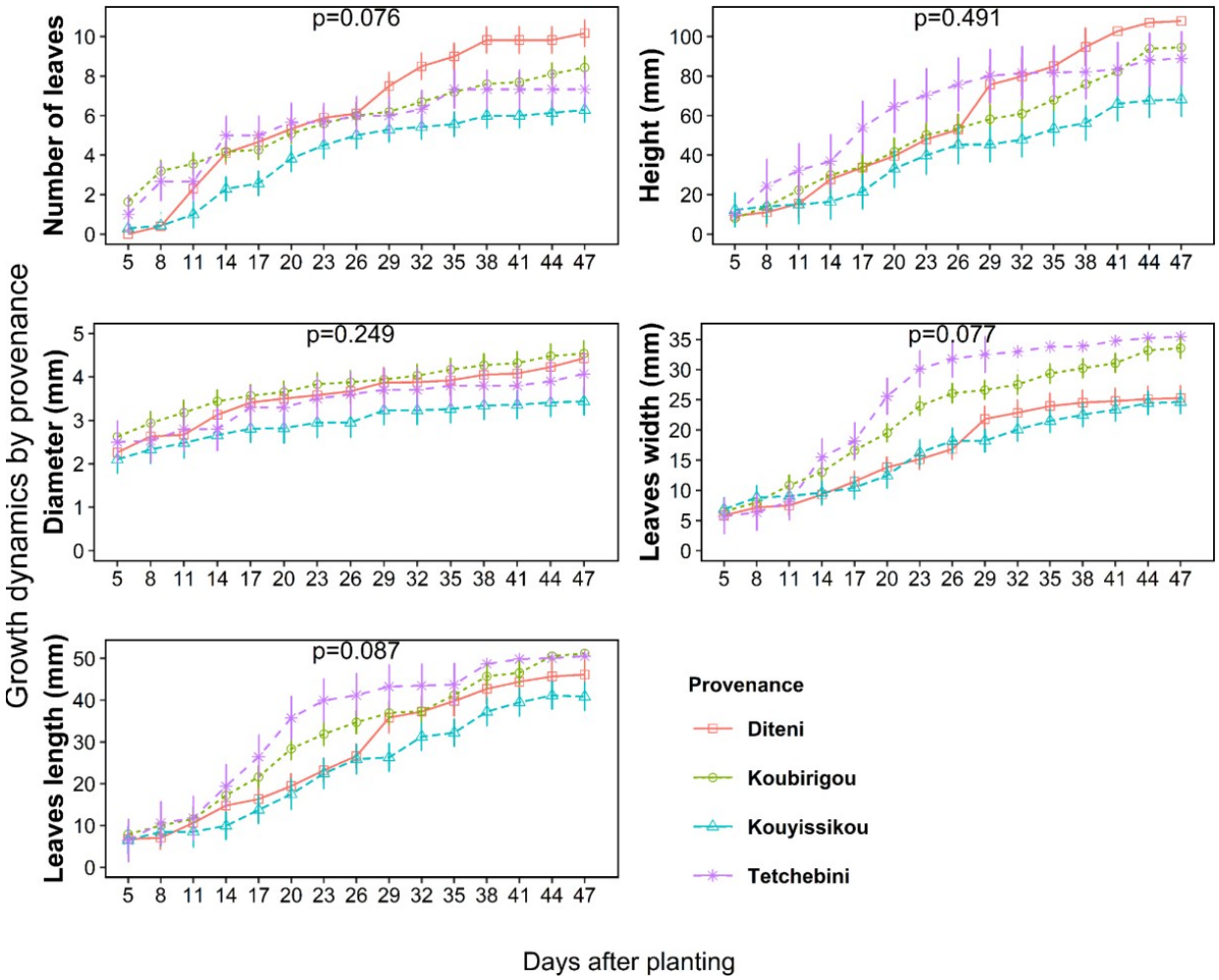

Figure 7. Dynamics of five growth parameters of *T. atacorensis* according to provenances.