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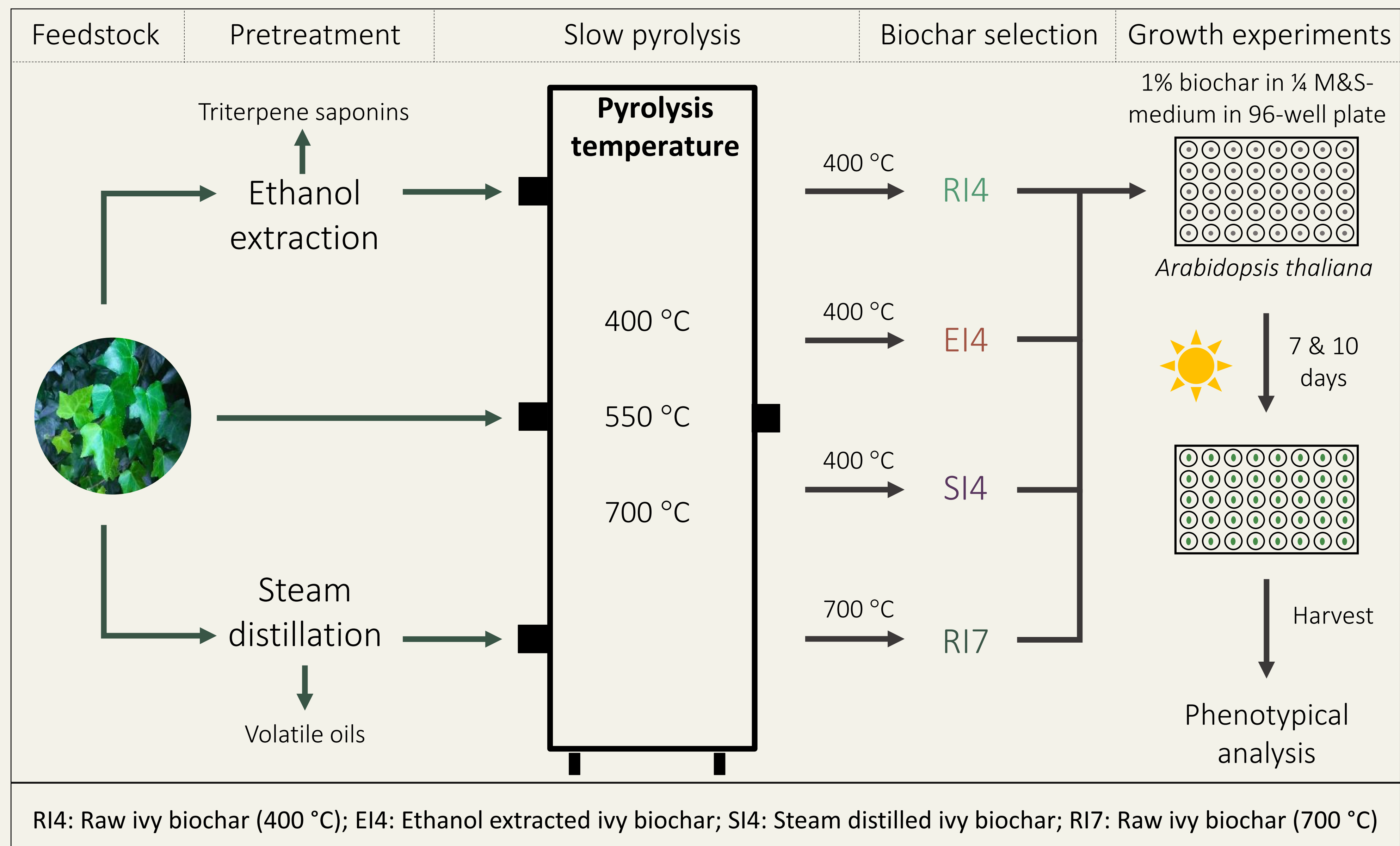
## Introduction

Industrialized farming relies heavily on the use of unsustainable **synthetic fertilizers** to achieve their required plant production goals, this usage has several negative side-effects e.g. **eutrophication** of natural waters or the increase of **atmospheric nitrogen** levels. A possible alternative biobased fertilizer, could be **biochar**. In this regard, we [1] synthesized biochars based on **raw** and **extracted common ivy** (*Hedera helix* L.) trimmings. The physicochemical characterization indicated their potential as effective **soil fertilizers**, however this was not supported by **plant-growth experiments** yet.

## Research goals

- Assessment of common ivy based biochars for their potential use as **soil amendment**
- Investigation of the impact of **pyrolysis temperature** on plant development
- Evaluation of the effect of biomass **valuable compound extractions** on the applicability of the biochars

## Materials and methods

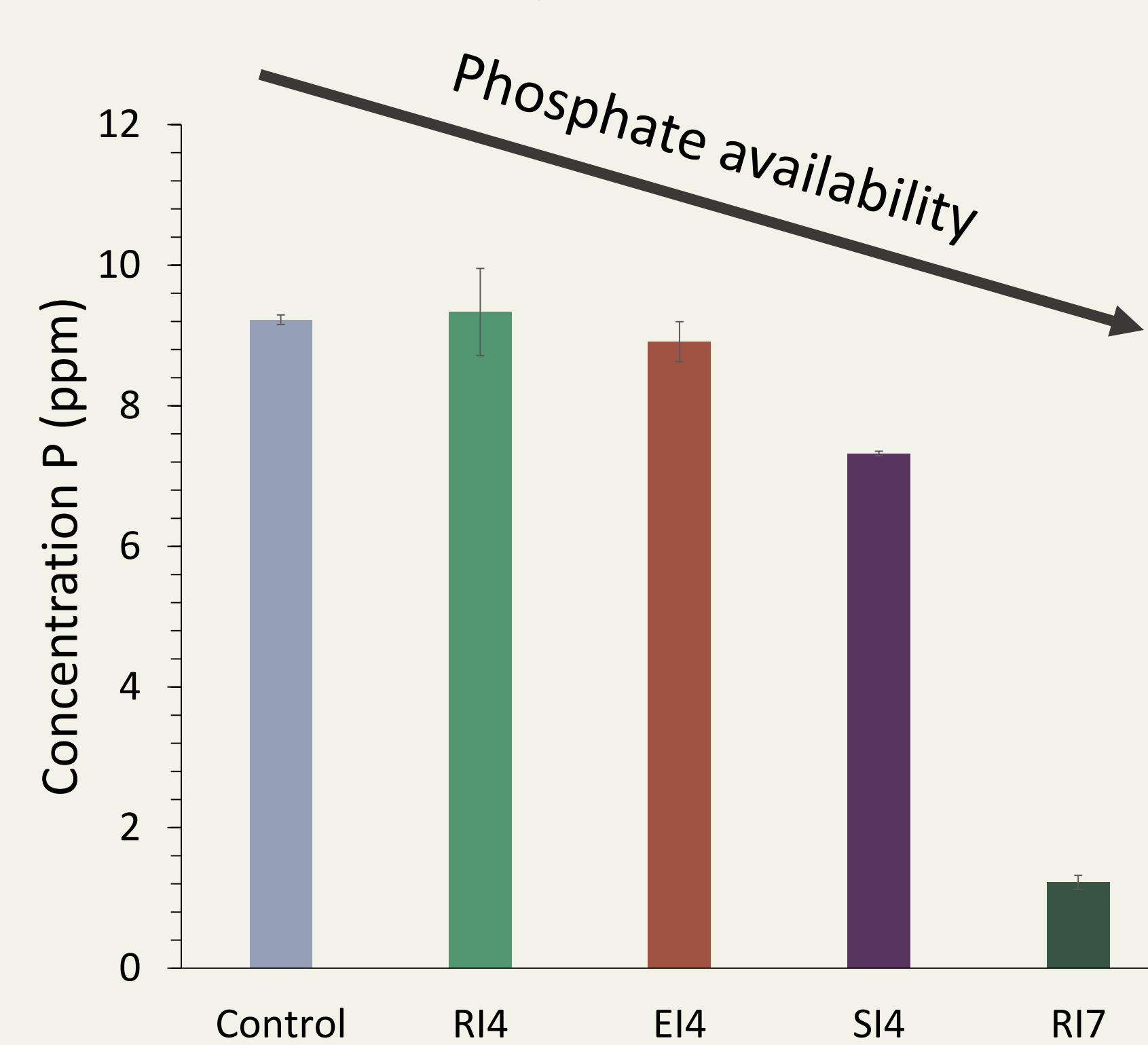
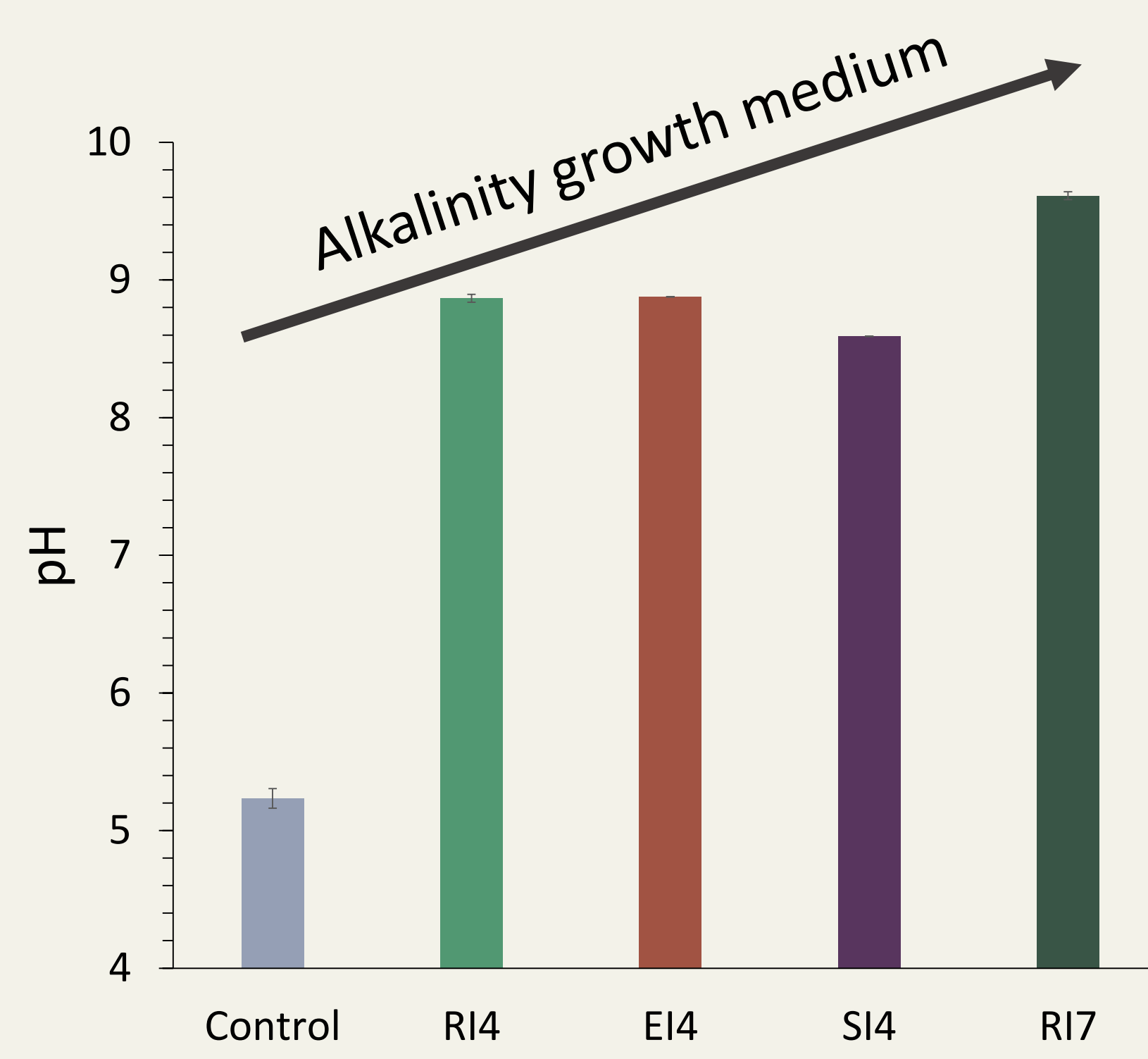
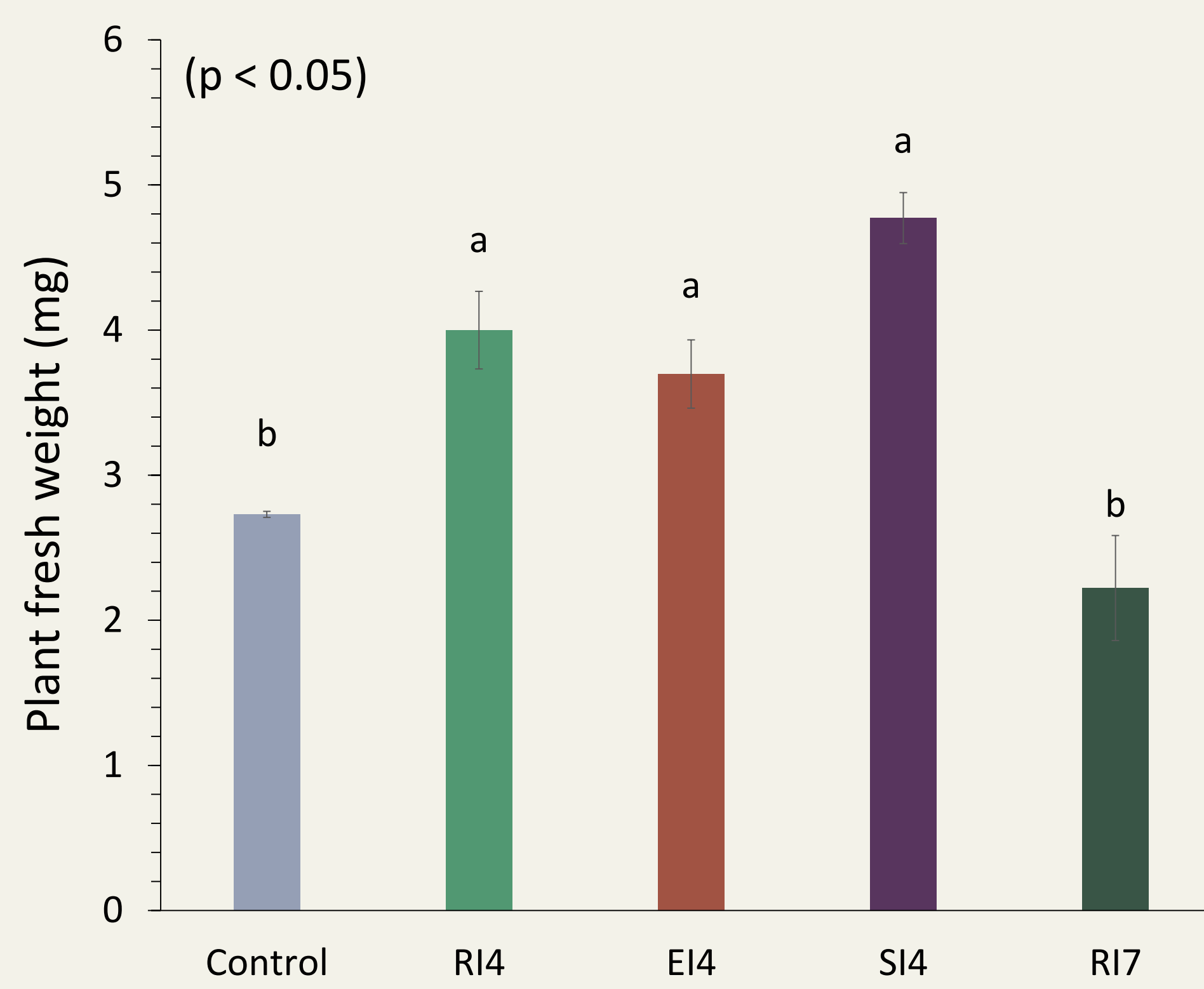
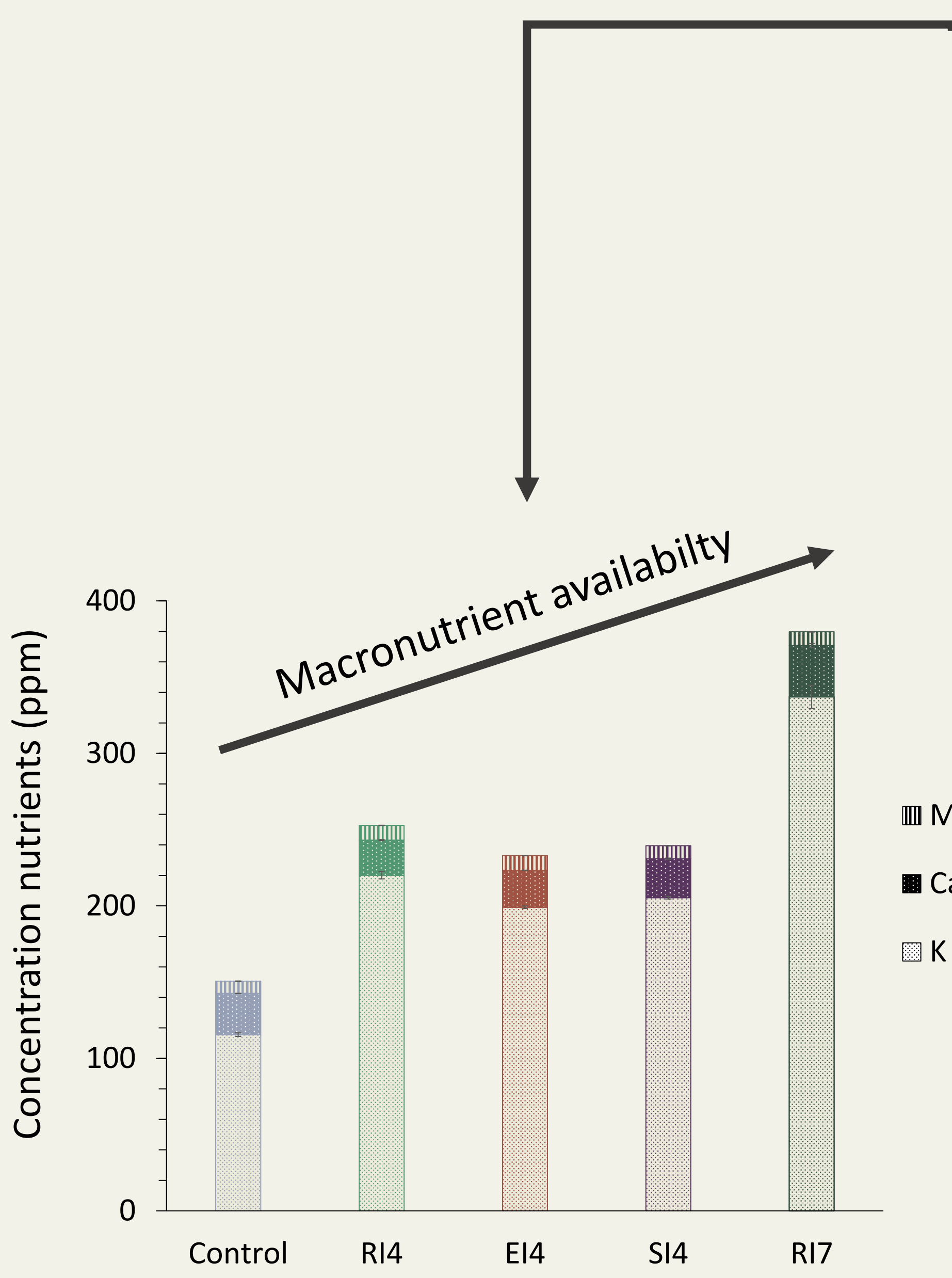


## Results & Discussion

Biomass valuable compound extractions prior to pyrolysis **do not inhibit the biochar performance**

Common ivy based biochar **improves plant development**

Stimulating effects of biochars produced at 400 °C are **not observed** for biochar produced at 700 °C



## Conclusions

**Feedstock:** Common ivy based biochars have the potential to be used as soil amendment

**Pyrolysis temperature:** 400 °C optimal for fertilizer application due to phosphate availability

**Ethanol extraction:** Not significantly different from untreated biochar

**Steam distillation:** Not significantly different from untreated biochar

Ethanol extraction and steam distillation suitable pretreatment steps in common ivy-based valorization process

[1]

