

## POTENTIAL APPLICATION OF MUNICIPAL SOLID WASTE (MSW) COMPOST FROM ORGANIC WASTE AS AN HERBICIDE IN VITICULTURE

Mordos L.S.\*, Romano P.\*, Stifani M.\*, Zorzi G.\*\*, Accogli R.\*, Rustioni L.\*

\* Department of Biological and Environmental Sciences and Technologies, University of Salento, Via SP6 Prov.le Lecce-Monteroni 73100 Lecce

\*\*Environment Department, Edmund Mach Foundation's Research Center, 38098 San Michele all'Adige (TN), Italy



U-vine - Prot. P2022AKZBP CUP CODE: F53D23011820001

### INTRODUCTION

The use of **chemical herbicides** causes **pollution** and **degradation** of **soil quality**. The application of **compost** produced from organic waste represents an opportunity due to the presence of **ammonia** and **short-chain fatty acids** that inhibit seed germination. Therefore, it is potentially useful for weed control in crops.

### METHOD

- ✓ **4 tested species:** Chicory (*Cichorium intybus*), Wild fennel (*Foeniculum vulgare*), Rye (*Secale cereale*), Fava bean (*Vicia minor*).
- ✓ **5 treatments** (compost extract concentrations of 0%; 10%; 30%; 50%; 100%).
- ✓ **3 replicates** of 10 seeds per treatment.
- ✓ **Controlled growth conditions.**

To evaluate the anti-germination effect of the compost, the **average number of germinated seeds was measured.**

### AIM

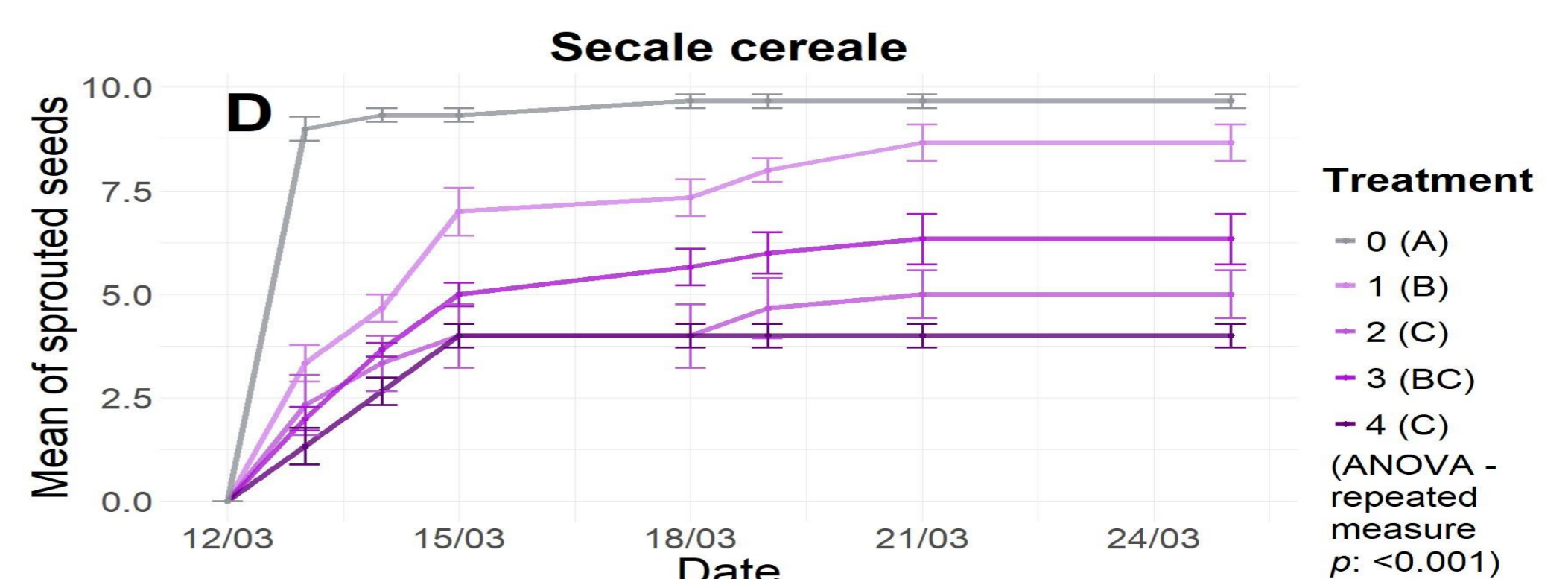
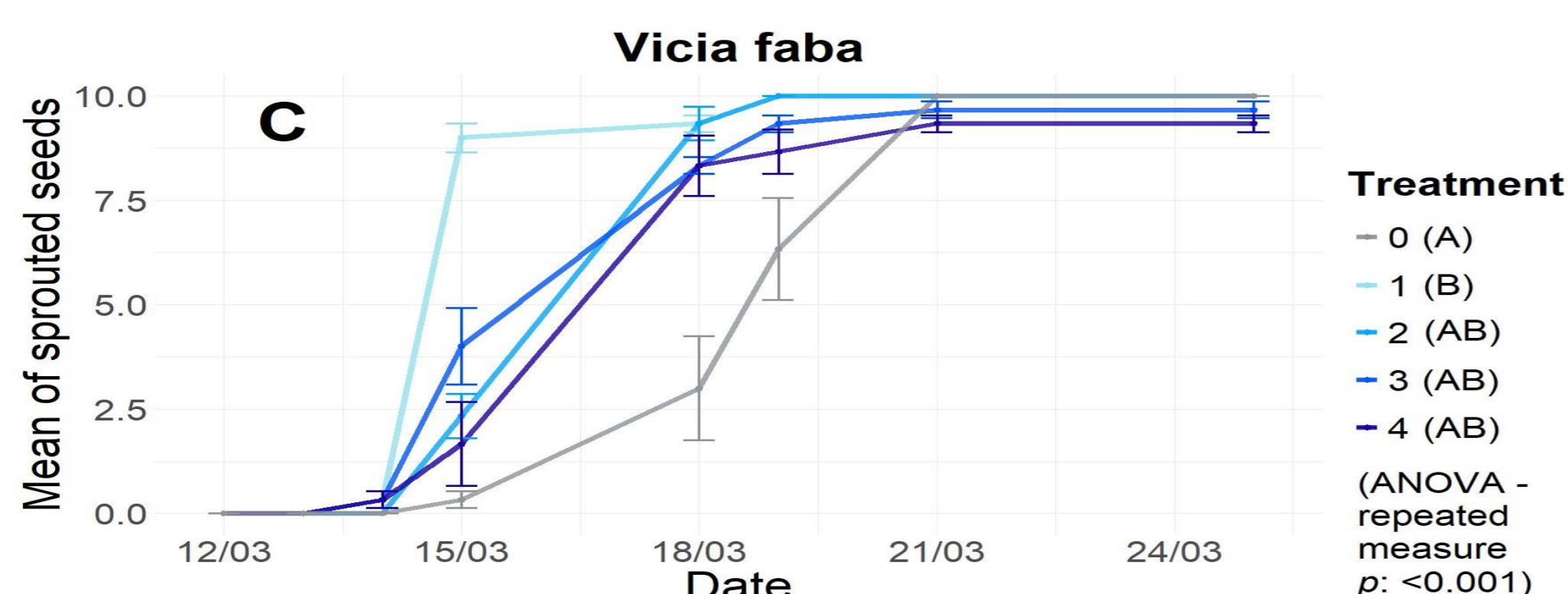
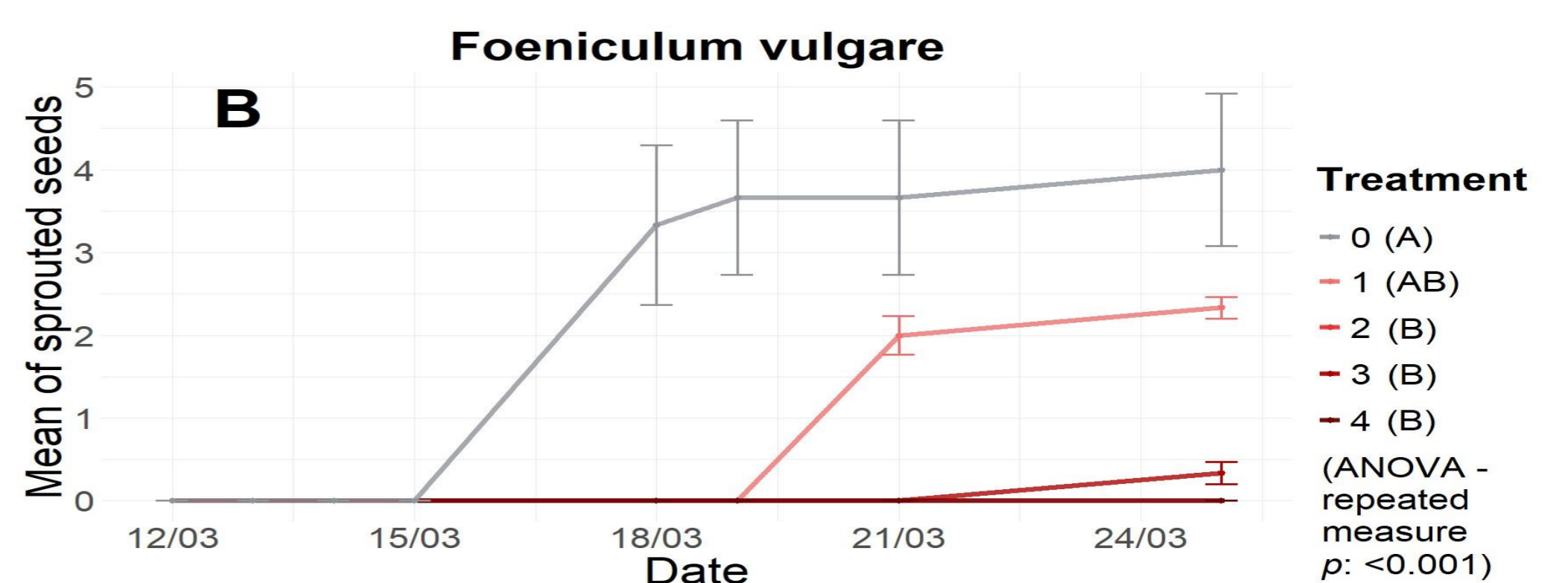
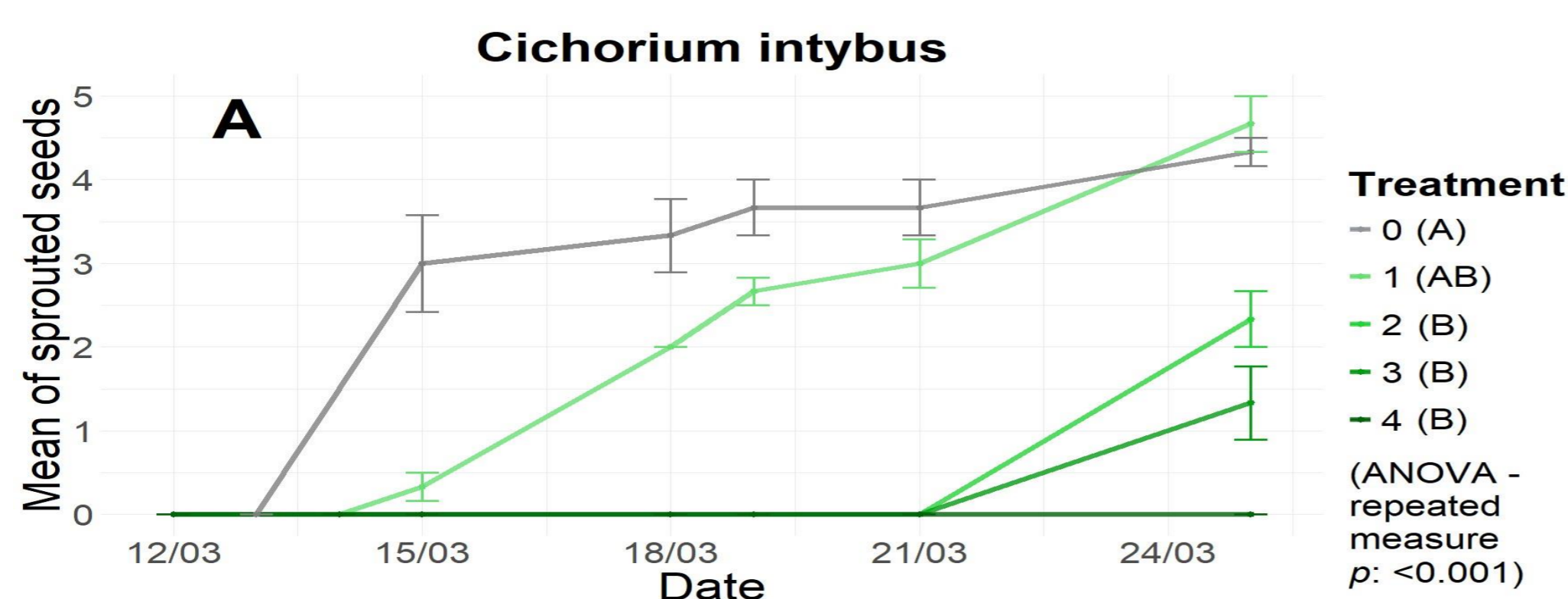
The goal of this work is to develop a method to evaluate the **antigerminative effect of MSW compost** through germination tests under controlled conditions and to hypothesize possible applications in viticulture.



Fig. 1 Preparation of compost concentrations and plates

### RESULTS & DISCUSSION

The MSW compost demonstrated antigerminative effects on the small-seeded species (wild fennel, chicory, and rye), which were correlated with the concentration of the MSW compost extract. Generally, significant effects were observed starting at the 30% concentration level. In contrast, the germination of fava bean, which is used as an artificial cover crop, was not inhibited. This lack of inhibition is likely due to the large size of the seeds.



### CONCLUSION

Compost may have an **interesting application in vineyards**, not only as an organic fertilizer but also for **weed control**. Its selective anti-germination action, which does not inhibit the growth of fava bean, also allows its use alongside the most common temporary ground covers in Mediterranean areas.