



Effect of *Ascophyllum nodosum* seaweed extract and powder on vegetative growth characteristics and foliar nutrient content of *Vitis* spp. hybrid cv. L'Acadie Blanc

Rob Hines, Department of Sustainable Agriculture and Food Systems, Kwantlen Polytechnic University

Grapevine growth is inhibited by high doses of seaweed powder but not extract

Introduction

Seaweed...

- Is used in agriculture to provide nutrients, biostimulation and soil conditioning
- Is often locally-available, accessible, and inexpensive
- Brings nutrients from ocean to land

Methods

- Seaweed was applied to potted first-year grape vines at four concentrations (none, low, medium, high) as either a powder or a liquid extract.
- Powder was incorporated into growing media at 0, 300, 600, or 1200 g/pot.
- Extract was applied as a foliar spray every two weeks between June 22 and August 29 at 0, 2, 4 or 8 ml/pot.
- The experiment used a completely randomized full factorial design with six replicates (48 pots).
- Data collection included weekly recording of longest vine length, mean internode length, leaf SPAD reading, and soil electrical conductivity.
- Leaf samples were collected for tissue analysis at the end of the season.

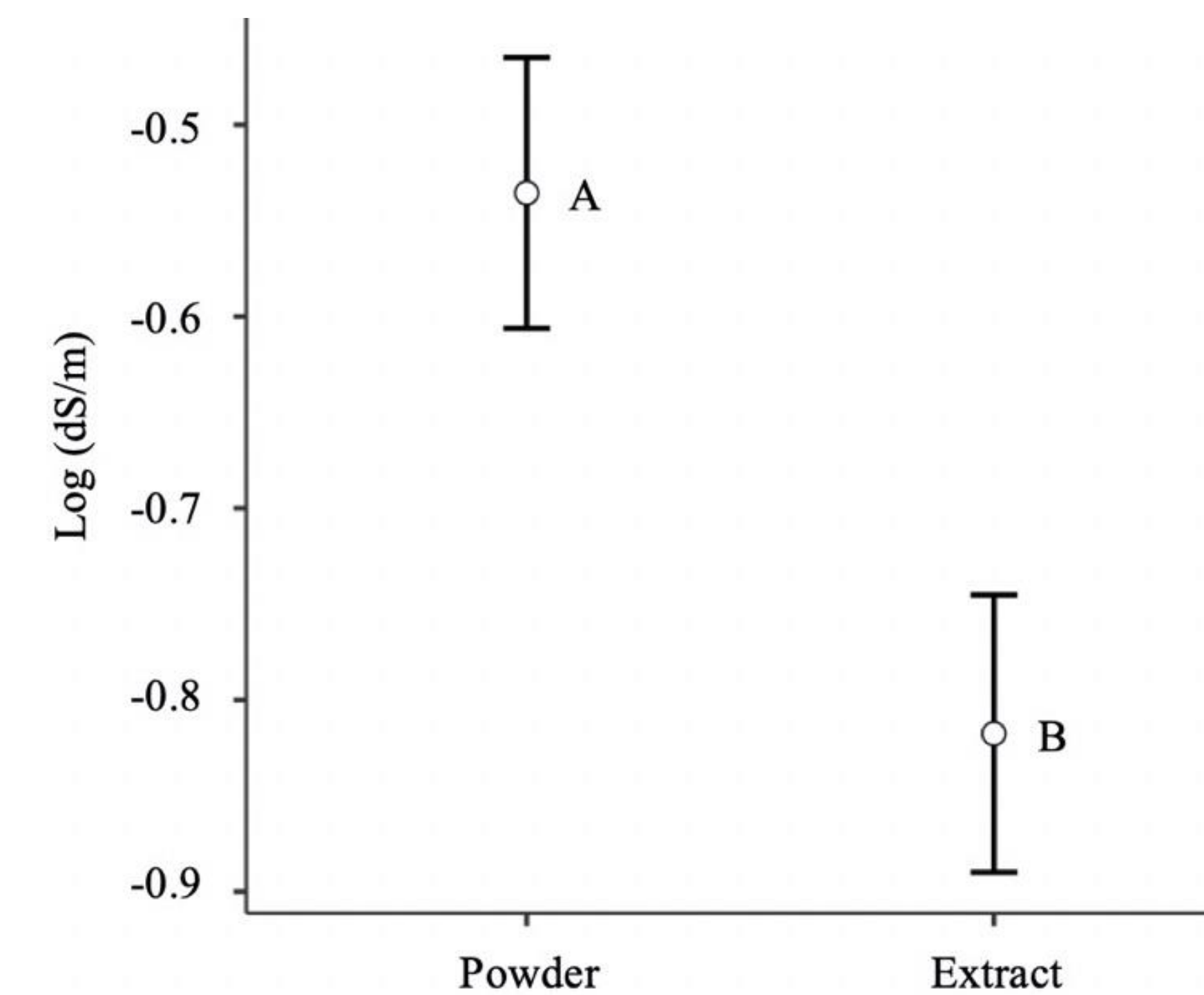


Figure 1a. Log (dS/m) of soil EC and standard error, different letters showing significant differences among forms on July 7.

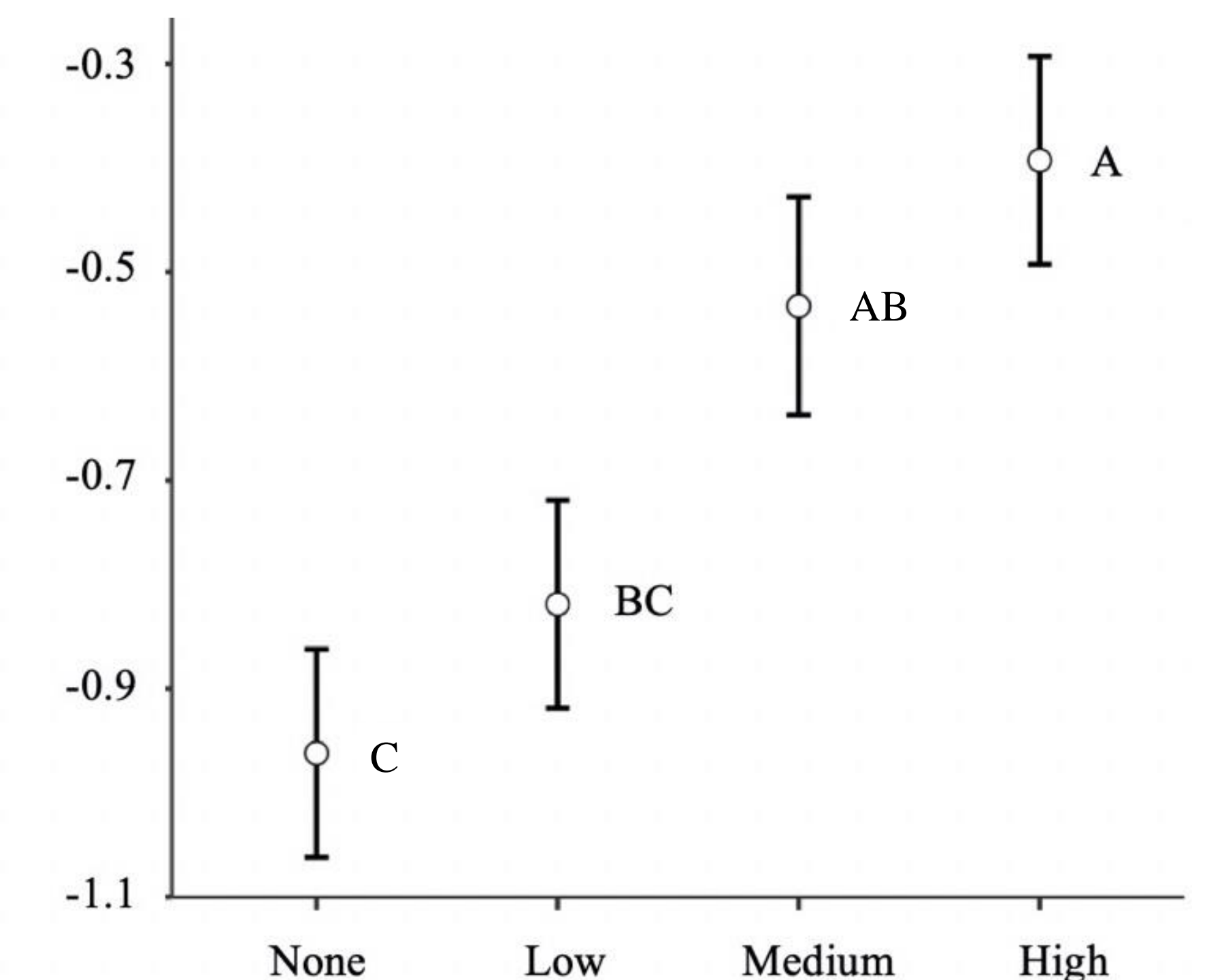


Figure 1b. Log (dS/m) of soil EC and standard error, different letters showing significant differences among concentrations on July 7.

Results

- Soil salinity was higher in the powder treatment than the extract treatment (Fig. 1a), and increased with treatment dose (Fig. 1b).
- The highest powder concentration inhibited vine growth (Fig. 2a).
- No significant effect of extract concentration on vine growth was observed (Fig. 2b).

Conclusion

- Seaweed does not promote growth of first year grape vines.
- Seaweed applied as a powder inhibits grape growth at high concentrations, likely due to salinity.

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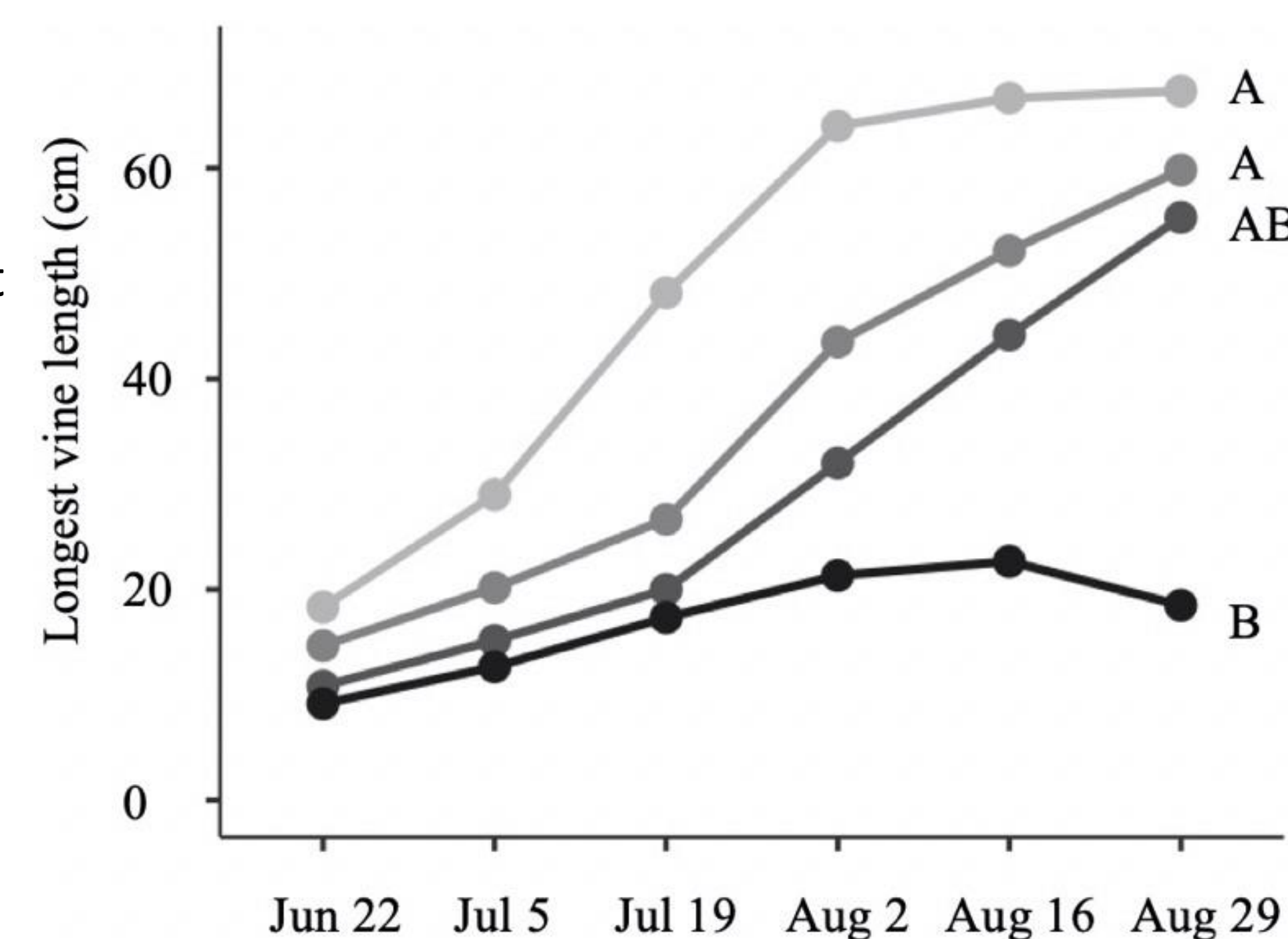


Figure 2a. Mean longest vine length trends of powder treated vines over time, readings with different letters show significance among concentrations on August 29.

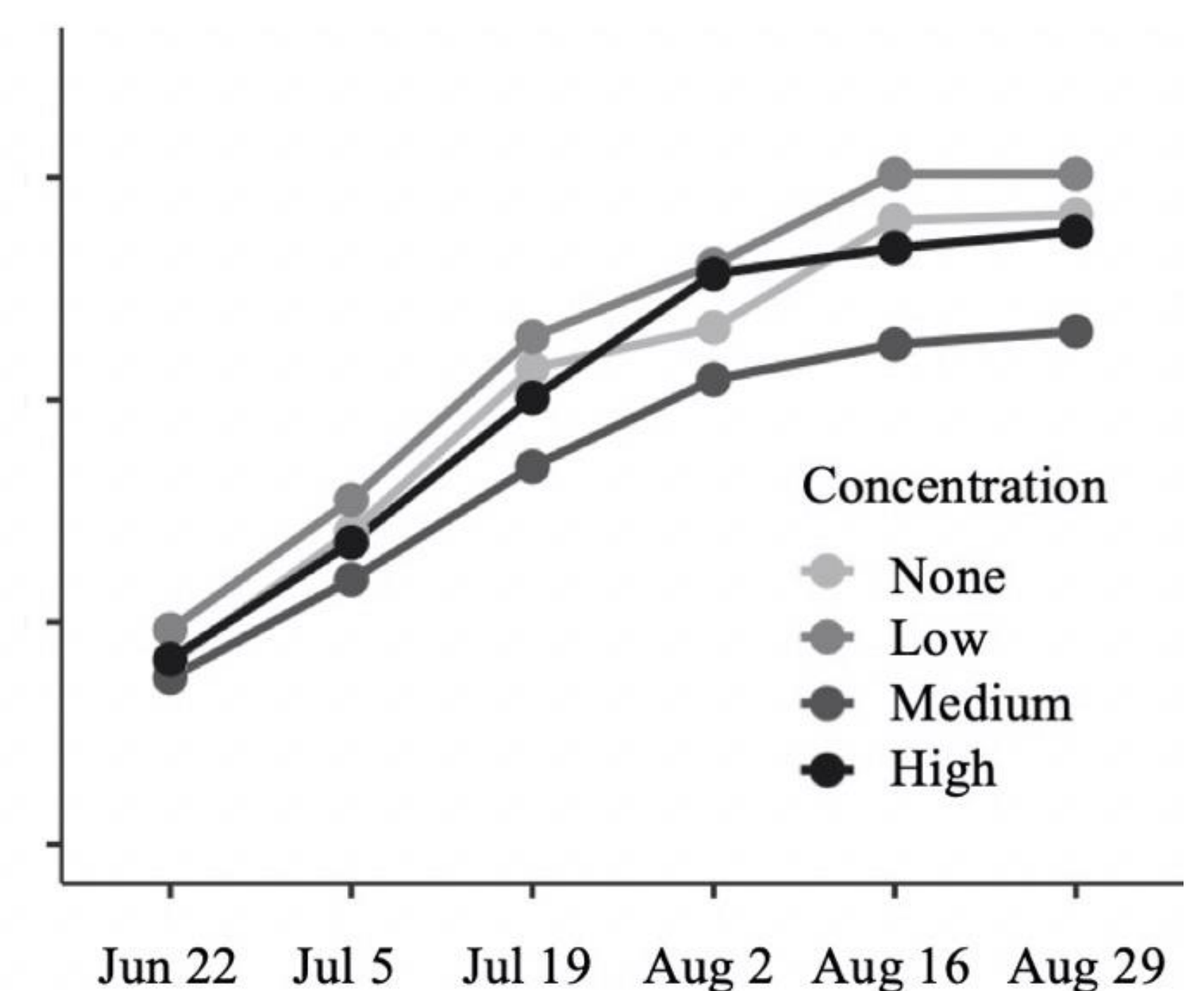


Figure 2b. Mean longest vine length trends of extract treated vines over time showing no differences among concentrations on August 29.

