

In Vitro Seed Germination of *Hydrangea paniculata* Sieb.

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Introduction

Hydrangea paniculata Sieb. is a popular ornamental plant in the United States for its long-lasting flowers and cold hardiness (Fig. 1). To introduce these traits to other *Hydrangea* species, cross pollination had been carried out with very limited number of seeds. Conventional seed germination by many researches yielded no survival seedlings so far and in vitro seed germination had been investigated in this study.



Figure 1: *Hydrangea paniculata* Sieb.

Materials & Methods

Materials: Seeds of *Hydrangea paniculata* Sieb.

Methods: Seeds of *Hydrangea paniculata* were sterilized under 16 combinations of 75% alcohol and 8% NaClO.

Hydrangea paniculata seeds were cultured under B-5, MS (full or half strength), and WPM media. Darkness treatment was investigated for *Hydrangea* seed germination from 0-14 days.

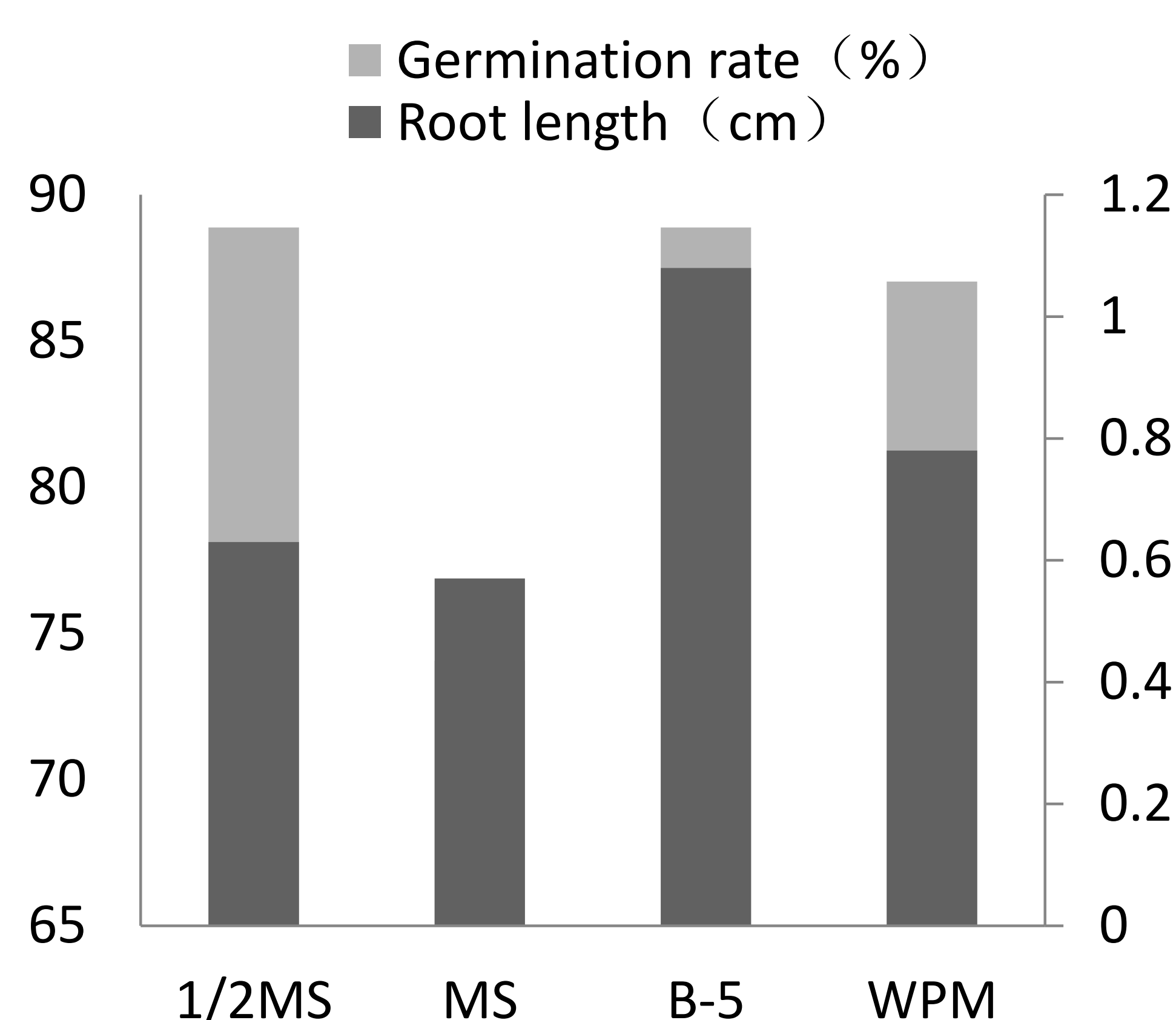


Figure 2: Effects of media formulation on seeds

Table 1: Effect of sterilize time on seed germination

Sterilize time: 75% alcohol(s) 8% NaClO(min)	Contamination rate	Germination rate
0 0	100.0a	0.0e
0 1	61.1ab	83.3ab
0 3	50.0bc	93.8a
0 5	27.8bcd	70.2abc
15 0	0.0d	94.4a
15 1	11.1cd	87.5a
15 3	11.1cd	100.0a
15 5	0.0d	83.3ab
30 0	5.6cd	83.3ab
30 1	0.0d	88.9a
30 3	50.0bc	33.3cde
30 5	0.0d	44.4bcd
60 0	0.0d	72.2abc
60 1	0.0d	44.4bcd
60 3	0.0d	38.9cde
60 5	0.0d	11.1de

Reference

Reed S M. 2000. Development of an in ovo embryo culture procedure for *Hydrangea*. Journal of Environmental Horticulture 18(1): 34-39.

Results & Discussion

The perfect germination rate was achieved under sterilize treatment of 75% alcohol for 30 seconds and 8% NaClO for 1 minute (Table 1). Seeds could be germinated under B-5, MS (full or half strength), and WPM media with 75% or higher germination rates. B-5 media were recommended because it had the biggest root mass (Fig. 2). Darkness was not needed for *Hydrangea* seed germination and light conditions promoted uniform seedlings and shortened overall germination time (Fig. 3).

Conclusion

The optimized protocol for in vitro seed germination of *Hydrangea paniculata* should be sterilized seeds at 75% alcohol for 30 seconds and 8% NaClO for 1 minute, then culture them in B-5 media without darkness treatment. This protocol should lead to better success for the in vitro germination for *Hydrangea* interspecific hybridization seed germination.

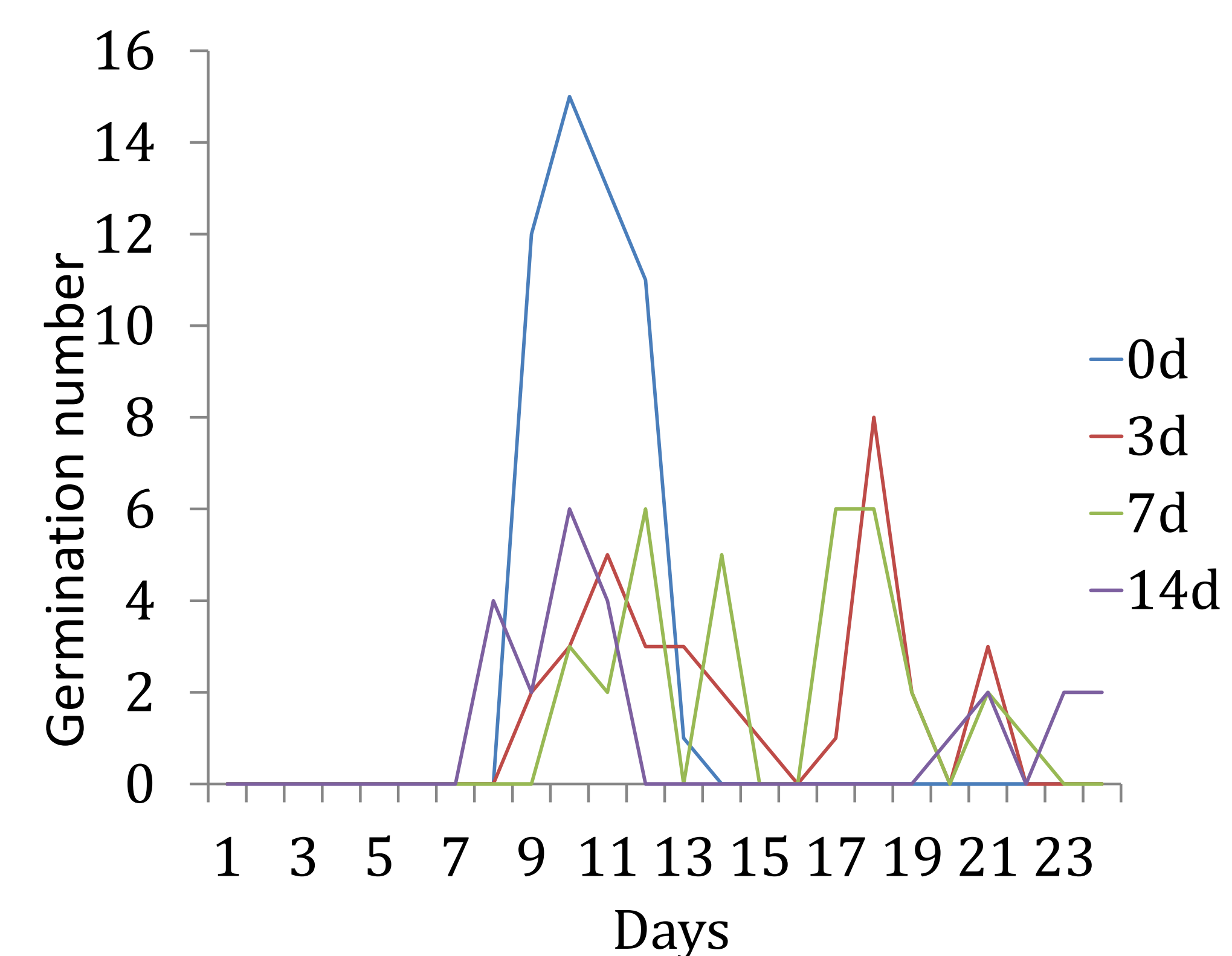


Figure 3: Effects of dark treatment on seeds germination