

In vitro seed germination and development of *Calopogon pallidus* (Orchidaceae) from Virginia



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Introduction

Calopogon pallidus (Pale Grass Pink Orchid) occurs in pine savannahs and grasslands of the Southeastern United States. It is S1-S3 ranked in four of the eight states where it occurs. Thought extirpated in Virginia, one population was discovered in 2001, and consists of less than 25 plants in approximately 25 m². While the widespread *C. tuberosus* has been grown from seed (Kauth & Kane 2009), no report of *C. pallidus* germination has been reported.

Hypothesis

We anticipated that *C. pallidus* would germinate and grow on commercial orchid growth media.

Methods

- Capsules collected September 2013
- 1 mL of seed/water mixture planted on four growing media from PhytoTechnology Laboratories® (n=11):
 - Orchid Seed Sowing Medium (**P723**)
 - **BM-1** Terrestrial Orchid Medium
 - **Knudson C** Orchid Medium
 - **Knudson C Plus** Modified
- 16/8 hour light/dark cycle

Results

- **2 weeks:** germination on all media
- **6 weeks:** shoots form in P723, BM-1, Knudson C
- **12 weeks:** shoot development greatest in P723

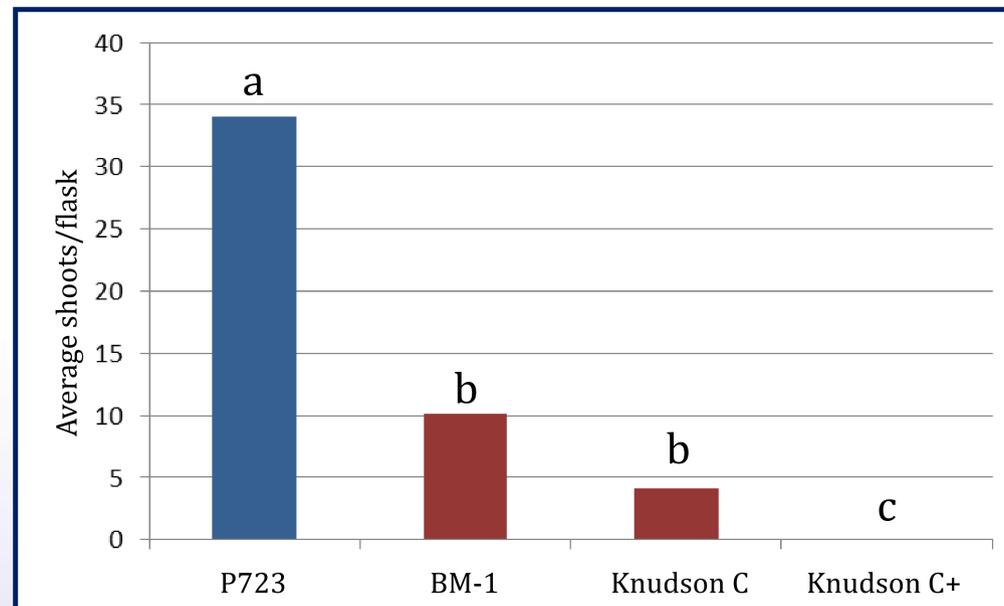


Figure 1. Shoot growth at 6 weeks. Colors and letters indicate levels of significance (p<0.05)

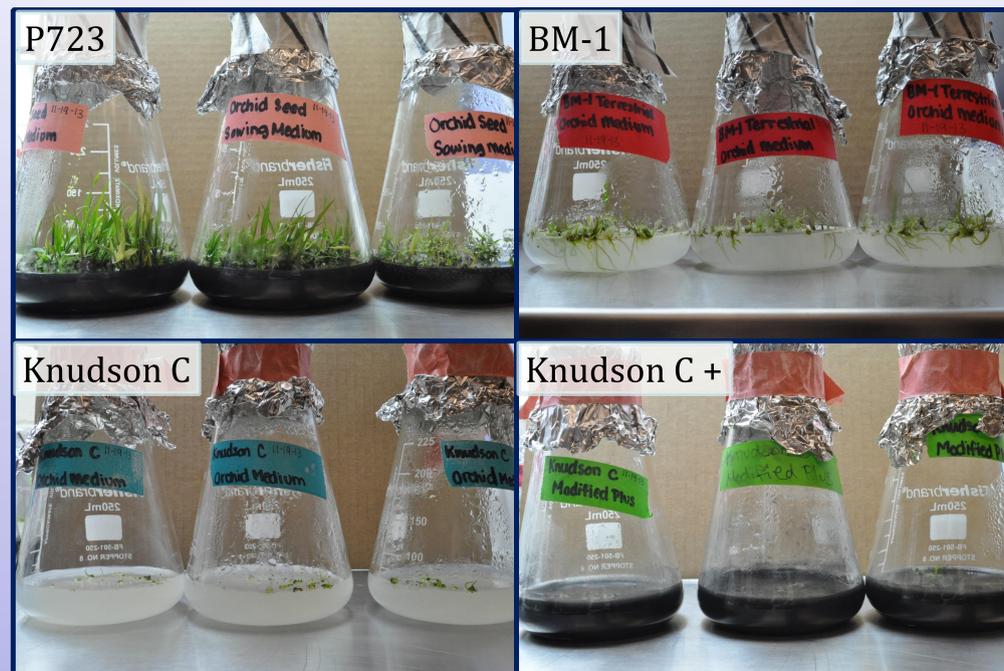


Figure 2. Growth at twelve weeks.

Conclusions

- *C. pallidus* can be grown from seed on commercial growth media
- Phytotech P723 medium shows greatest shoot growth and greatest numbers of plants after three months

Future Work

- Study effect of different media on root/shoot development
- Identify mycorrhizal symbionts, local pollinators
- Induce flowering under controlled conditions
- Population level studies: North Carolina-Virginia disjunction
- Contribute specimens to conservation institutions (North American Orchid Conservation Center; Norfolk Botanical Garden)

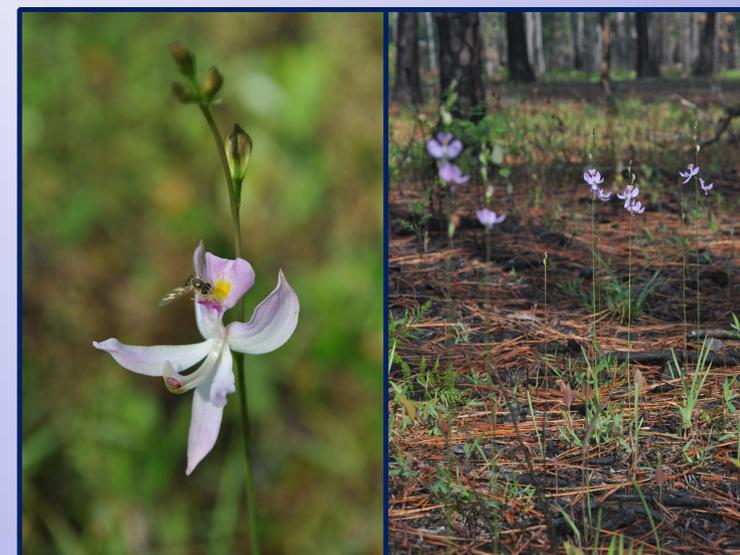


Figure 3. Flower with floral visitor (left). Habitat in Virginia. Note ashes from recent burn(right).

Acknowledgements

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References

Kauth, P.J. and M.E. Kane. 2009. In vitro ecology of *Calopogon tuberosus* var. *tuberosus* (Orchidaceae) seedlings from distant populations: implications for assessing ecotypic differentiation. *Journal of the Torrey Botanical Society* 136(4): 433-444.