

Seed dormancy, germination and plant juvenility studies in *Papaver bracteatum*



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INTRODUCTION

Papaver bracteatum is a perennial poppy species that contains the active pharmaceutical alkaloid thebaine. The species was investigated as a potential new crop in Tasmania, but was found to be difficult to establish in the field and to produce flowers in the 12 months following sowing. The recent availability of improved germplasm, and advances in agronomic techniques associated with crop establishment, has provided the impetus for a re-evaluation of *Papaver bracteatum* as a new horticultural crop.

Materials and Methods

- Germination was carried out according to the International Seed Testing Association (ISTA, 1999).

- Juvenility studies were conducted by transferring plants from Non inductive (no chilling) to inductive (chilling) conditions.



Results

- Maximum germination for the *Papaver bracteatum* seeds was from 15°C to 20°C. No germination was recorded at 30° and 35°C.
- Seeds were viable for an extended period of time (up to 9 months)
- Percent seed germination was 97%, 79% for light and dark treatments respectively.
- Preliminary results suggest that young plants are not responsive to chilling.

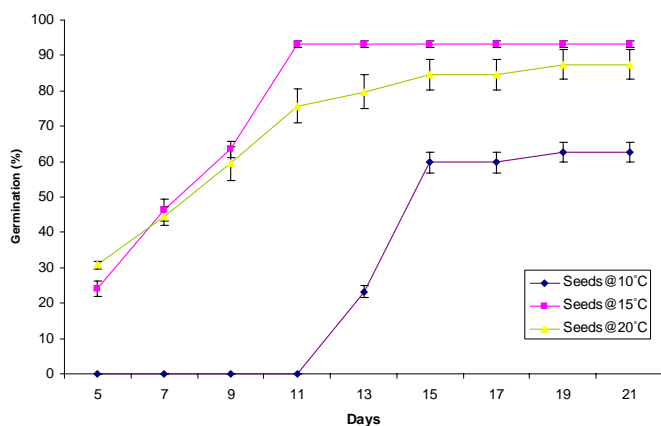


Figure 1: Cumulative percent germination (\pm s.e) of *Papaver bracteatum* seeds at different temperatures over a 21 day period.

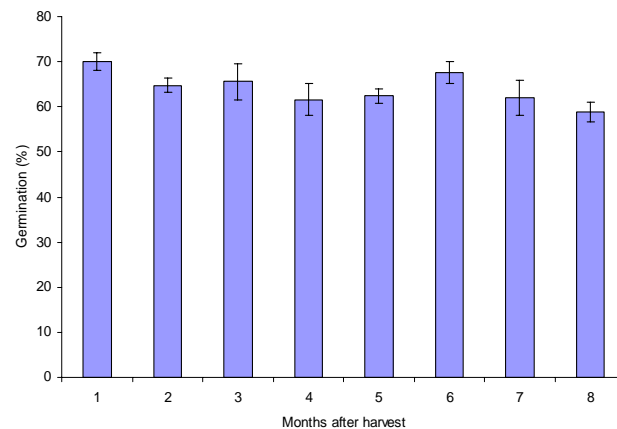


Figure 2: Mean (\pm s.e) germination percentage of seeds stored up to 9 months.

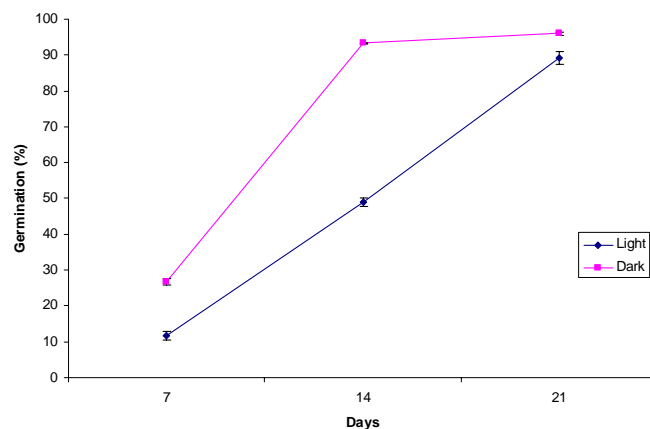


Figure 3: Cumulative percent germination (\pm s.e) for seeds germinated in the light and dark over a 21 day period.

Conclusions

- 15°C to 20°C is the optimum range for germination.
- Seeds do not require light to germinate, indeed light reduced the rate of germination.
- High temperature resulted in poor germination.
- Chilling is necessary for flower initiation.
- Knowledge generated from this project should contribute to identification of planting times and locations to ensure flowering in the first season.

References

International Seed Testing Association (1999), Seed Sci. & Technol., 27, Supplement.