

Non-targeted mutagenesis of *Ornithogalum candicans* through exposure to ethyl methanesulfonate[©]

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Ornithogalum candicans [syn. *Galtonia candicans* (Decne.)] (Baker) J.C. Manning & Goldblatt, cape hyacinth, is a white flowering bulbous species native to South Africa. The large, white flowers attract a diverse set of pollinators providing pollen and nectar throughout the growing season. While it blooms profusely from early June until frost in the Willamette Valley of Oregon, there has been only one cultivar, 'Moonbeam' (Hammett and Murray, 1993), introduced to the market. Typically, the species is seed-propagated for sale in nurseries.

One issue that has been noted is the tendency for cape hyacinth to lodge once 4-5 ft.-tall inflorescences are in full flower and begin to fruit (Armitage, 2008). Additionally, the plant is too large to containerize and fit onto a nursery shipping cart when in flower. Another concern is the potential for weediness. Individual plants produce thousands of seed and, in the field, they readily germinate (pers. observ.).

Ethyl methanesulfonate (EMS) is a chemical mutagen used by breeders to induce variation in relatively homogeneous populations. Other reported effects of EMS include reduced height and fertility. Ethyl methanesulfonate can be applied to seed through imbibition (Alcantara et al., 1996; Froese-Gertzen et al., 1964; Talebi et al., 2012).

In this poster, we present the results of EMS application on *O. candicans* seeds. Seeds were collected from a single plant at the OSU North Willamette Research and Extension Center in September, 2011. Seeds were sorted into experimental units of 300 seed each. A factorial arrangement of treatments was applied to the seed. The first factor was a 24-h imbibition treatment in water (no soak or soak). The second factor was concentration of EMS (0, 0.2, 0.4, 0.6, 0.8 and 1%). Seeds were germinated and planted in the field.

Here we report the results of seed germination experiments, pollen viability, and phenotype data of the M₁ population and we report preliminary results of seed germination of the M₂ population. The general trend observed is a reduction in height and fertility as the concentration of EMS increases.

Literature cited

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