

Final report on the project

Propagation and cultivation of the aquarium plant *Aponogeton elongatus*.

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Sorry for the delay, this is the busy time of year with exam marking. The following is an update of my project on *Aponogeton elongatus*. There is not a lot to report at this stage as comparatively little was done in 1997. However I have recently commenced a research masters and I am currently planning experiments to determine the effects of water motion, light and nutrition on the growth of *Aponogeton elongatus*. These will commence late 1997 and continue through 1998/99.

The report is as follows:

Work is continuing on the propagation and culture of *Aponogeton elongatus*. Results from tissue culture experiments have confirmed that this aquatic plant propagates readily from tuber sections.

The most successful treatment is a combination of the growth regulators; 4.7 μmole IBA, 4.7 μmole NAA and 2.32 μmole kinetin ($P = 0.027$). However later trials revealed no significant difference between either Murashige & Skoog or Reinert & Mohr liquid growth media, nor any interaction between type of medium and growth regulator treatment.

A minor problem is contamination despite trying different decontamination procedures. Surface sterilisation is not completely effective as the contamination appears to come from within the explant tissue. It is mostly bacterial, although one or two types of water fungi can also develop. Antibiotics could be used, but for a number of reasons they are not my preferred option. In the near future I will be trying plant preservative mixtures (PPM).

Repeated subculturing was attempted, however proliferation decreased with each successive subculture. Contamination also continued to be a problem reducing the number of cultures. I plan to try different combinations of growth regulators such as less cytokinin with older cultures.

Work has also begun, looking at the effects of water motion, light and nutrition on the growth of *Aponogeton elongatus* from seedlings and tissue cultured plantlets. These plants appear to grow rapidly when they are planted in fertile anoxic media, are given water movement of about 0.005-0.01 m sec^{-1} , constant 24 hr light at an intensity of approximately 112 micro Einsteins $\text{m}^{-2} \text{sec}^{-1}$ and a water depth of between 23 – 30 cm.