P01-022

Establish tissue culture conditions for mass proliferation of *Liriope platyphylla* varieties

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Introduction

- *Liriope platyphylla* is recognized as one of the medicinal plants with various physiological activities, including anti-inflammatory, anti-cancer, and nervous system protection.
- However, many farmers are growing conventional varieties, which leads to problems with uneven content of functional ingredients.
- To solve this problem, cultivating nurtured varieties is suitable, but it is difficult to produce a large number of seedlings at once because it is grown by nutrient propagation.

Figure 1. General cultivation form of *Liriope platyphylla*

- Research propose :To establish a mass proliferation technology for *Liriope platyphylla* through tissue culture

Materials & Methods

- Tissue culture sample
  - Liriope platyphylla ‘Cheongsim’ variety

- Selection of suitable tissue for tissue culture
  - Test tissue sample : Leaf, Growing point, tuber, Root

- Selection of plant growth regulator type and concentration for tissue culture

Table 1. Standard media composition for tissue culture

MS media(M0222)	Sucrose	Plant agar	PPM	NAA	pH	Water
4.405g	30g	7g	0.1ug/mg	0.2ug/mg	5.8	1L

  - Tested plant growth hormones
    Benzylaminopurine(BAP), Kinetin, Thidiazuron(TDZ), Zeatin
  - Tested plant growth hormone concentration
    0 mg/L, 0.1 mg/L, 0.5 mg/L, 1.0 mg/L, 2.0 mg/L

- Media selection for mass proliferation and regeneration
  - Standard media composition : Same as table 1.
  - Tested plant growth hormones : Untreated, Zeatin+IAA

- Acclimatization methods : Transplanted into horticultural soil
- Transplanted into test field : Acclimatization 1 month later

Results

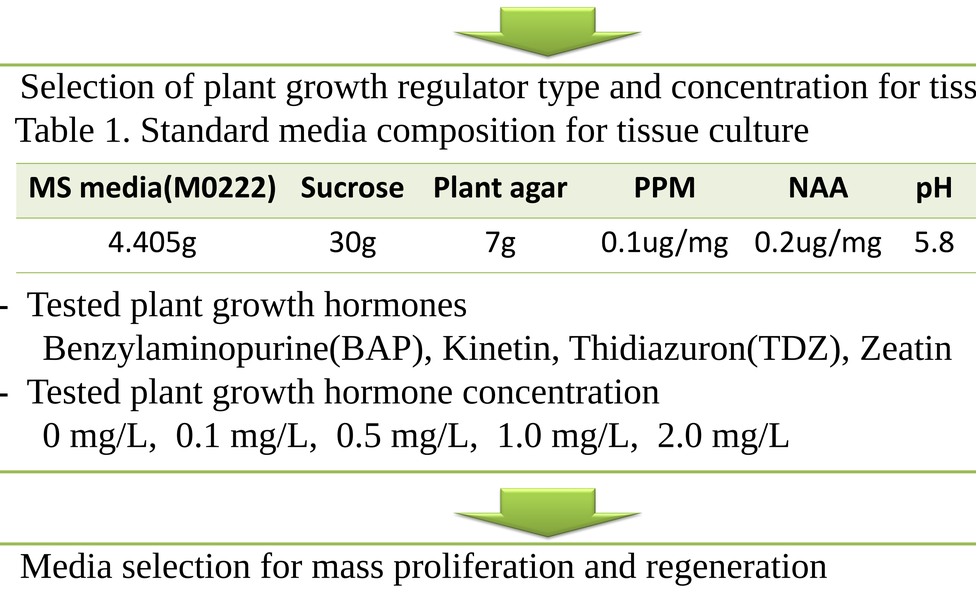

Figure 2. Selection of suitable tissue for tissue culture(A) and confirm regenetration of only the growing point

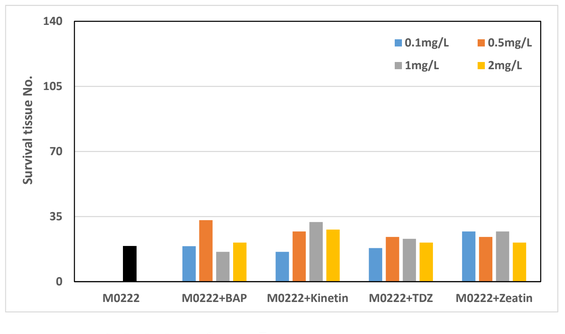

Figure 3. Selection of plant growth regulator type and concentration for tissue culture.(Total inoculation No. : 138 growing points)

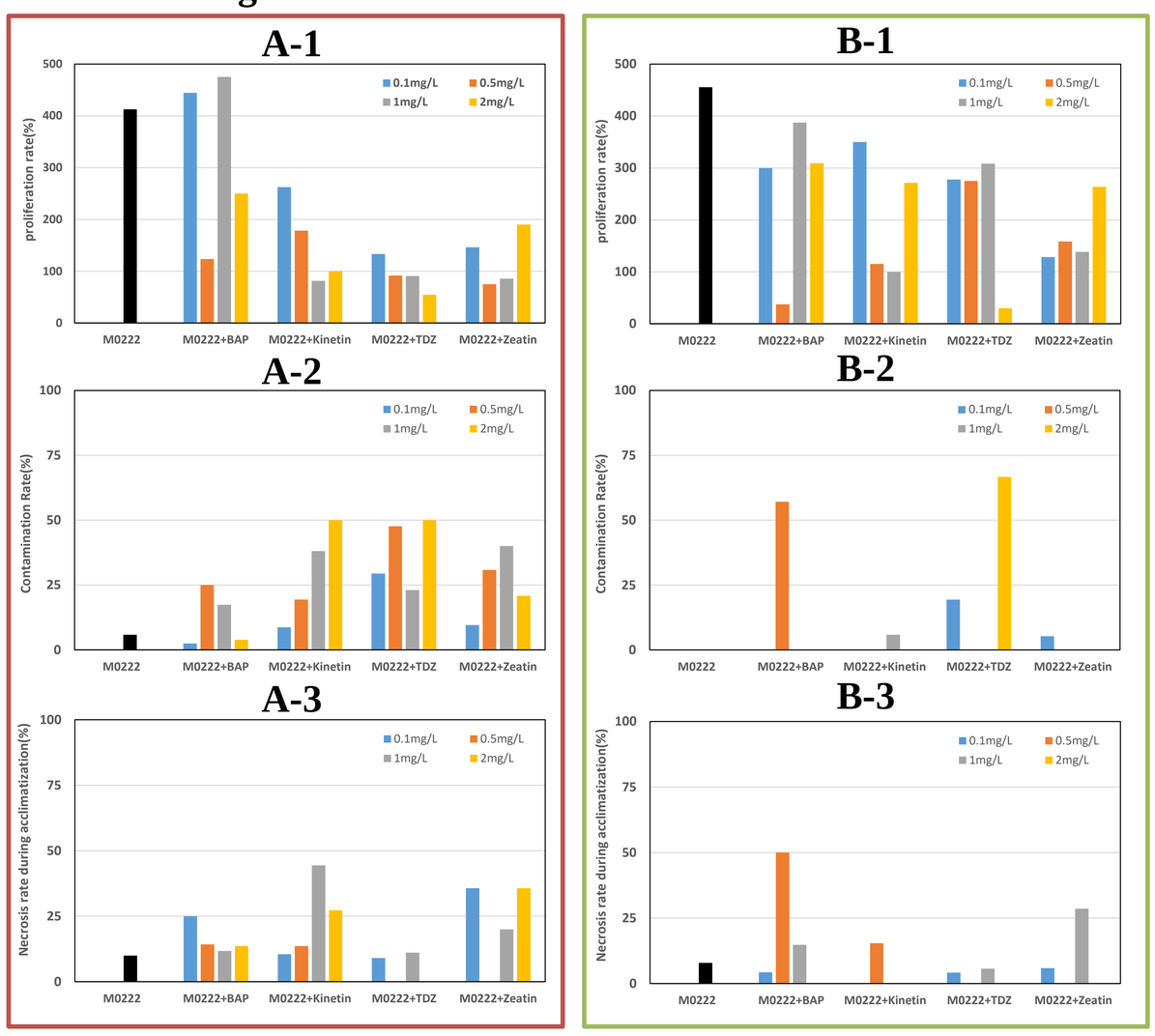

Figure 4. Result of media(A, B) selection for mass proliferation and regeneration(A-1,B-1), Contamination during proliferation(A-2,B-2),Death during acclimatization(A-3, B-3), The proliferation rate was highest in the medium using M0222 alone and the medium with 1 mg/L of BAP added.(A-1, B-1), In the proliferation medium selection, the medium with the addition of Zeatin+IAA had lower contamination rates and lower cell death rates during acclimatization compared to M0222 alone medium.

Figure 5. Results of the investigation three months after tissue culture acclimatization and field transplantation. The tissue culture results showed that the medium with Zeatin+IAA added had lower contamination and necrosis rate during acclimatization(Figure 4.) but there was reduced growth after field transplantation.

Conclusions

- As a result of research to establish tissue culture conditions for mass proliferation of *Liriope platyphylla*, tissue culture were inversely proportional to the growth after transplantation in the field.
- Therefore, in order to increase adaptability after transplantation in the field, a medium using M0222 alone was appropriate as a growth medium.
- However, since tubers have not yet formed, we plan to set culture conditions by combining additional research results.