# Potato Micropropagation

A number of different approaches have been successfully used in the regeneration of potato plants from *in vitro* cultures. Roest and Bokelman obtained plantlet regeneration from potato stem segments when explants were cultured on a MS medium supplemented with 10 mg/liter $GA_3$ , 1.0 mg/liter BA, and 1.0 mg/liter IAA. Espinoza *et al*. have reported on the micropropagation of potato by either nodal section or shake cultures. They found that when nodal sections were inoculated onto a MS culture medium supplemented with 0.25 mg/liter $GA_3$ and 2.0 mg/liter calcium pantothenic acid, the number of nodes increased six fold within 3-4 weeks. When nodal sections were cultured on a liquid MS medium supplemented with 0.4 mg/liter $GA_3$, 0.5 mg/liter BA, 0.01 mg/liter NAA, 2.0 mg/liter calcium pantothenic acid, and 2% sucrose, there was a 10- to 20-fold increase in the number of nodes is 2-3 weeks.

## Materials Required

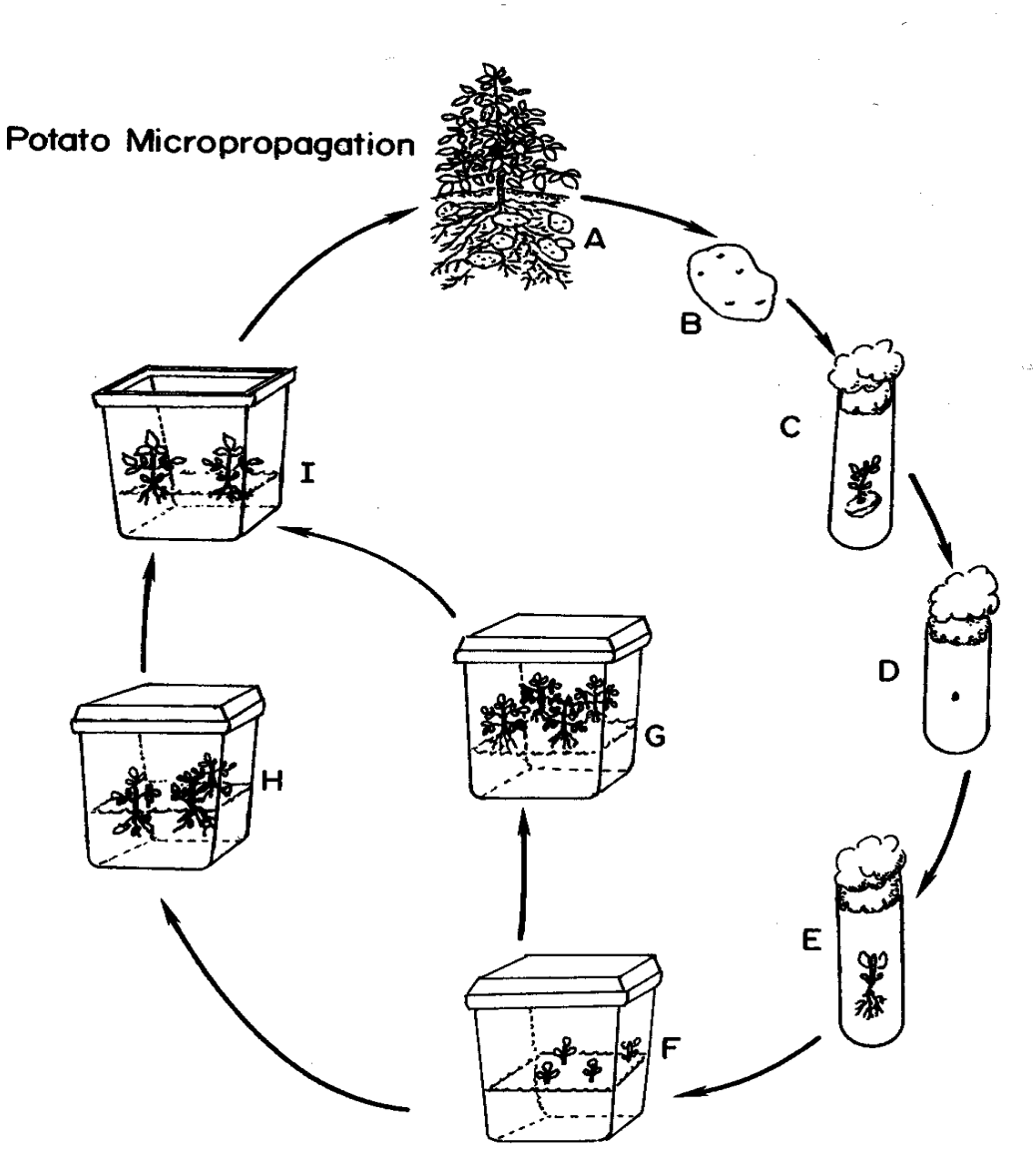
1. 5 small-mouth Mason jars
2. 1000-ml beaker and 250-ml beaker
3. 20 sterile plastic or glass petri plates
4. Glass Bead Sterilizer
5. 3 pairs of forceps and 3 scalpels
6. Waterproof marking pen and labels
7. Culture tubes (25 x 150 mm) (Product Number C925) with closures and racks (Product Number C908) to hold them
8. 125-ml Erlenmeyer flask
9. 1000 ml of 20% Clorox solution supplemented with a few drops of Tween-20
10. 1000 ml of sterile distilled water
11. 200 ml of 95% ethanol
12. Murashige BC Potato medium, Product Number M516 supplemented with 1.0 mL of Gamborg's Vitamin Solution (G219), 2% sucrose, 8.0 g/L Agar (A111) and 1.0 mL of BA, (B130).
13. Murashige & Skoog Basal Medium with Gamborg's vitamins (M404) supplemented with 0.25 mg/L $GA_3$ (G500) and 2.0 mg/L Calcium pantothenate (Product Number C186), 2% Sucrose S391), 0.5 mL of BA (B130) and 0.01 mL of NAA (N605).
14. 5 healthy medium-sized Irish potatoes

## Procedures

1. Place the basal end of a medium-sized Irish potato in a Mason jar filled with water; repeat with remaining four potatoes. Allow several weeks for the sprouting of eyes to occur.
2. Prepare the liquid and solid multiplication medium as described above. Dispense 10 ml of the solid medium into each culture vessel and 25 ml of the liquid medium into each 125-ml Erlenmeyer flask and then sterilize.
3. Remove sprouts, sterilize them for 10 min in 20% Clorox solution and then rinse the tissue three times with sterile distilled water.

***Phyto*Technology Laboratories, Inc.**
P.O. Box 13481; Shawnee Mission, KS 66282-3481
Phone: 1-888-749-8682 or 913-341-5343; Fax: 1-888-449-8682 or 913-341-5442
Web Site: www.phytotechlab.com

4. Aseptically section the sprouts into 10-mm sections with each section containing one node. Inoculate one node per culture tube or four nodes per culture flask. Incubate cultures under low-light conditions at 25°C. Liquid cultures should be agitated at 80-100 rpm.
5. Three weeks after inoculation, remove shoots from the culture vessels, divide into sections containing one node, and re-inoculate onto fresh medium as described in the previous step. Repeat this procedure every 3 weeks.

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