Micropropagation of GF-677 rootstocks (Prunus amygdalusx P. persica)

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Micropropagation

"… the *art* and science of multiplying plants *in vitro*."

Rapid clonal in vitro propagation of plants:

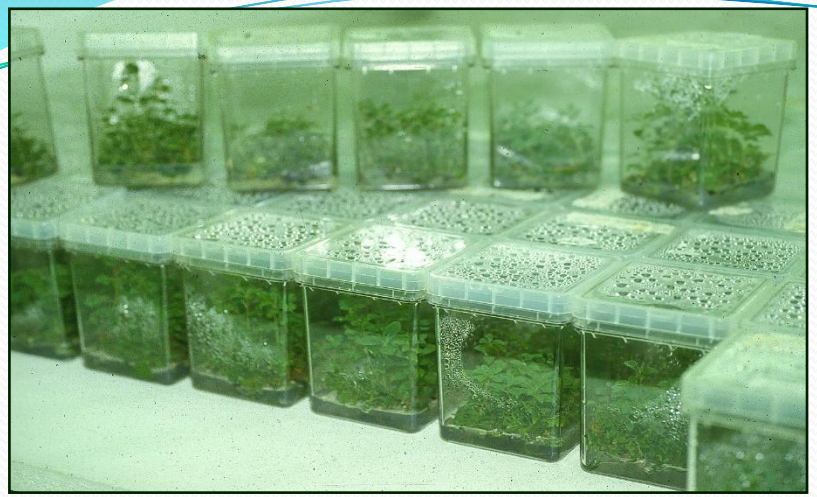
- from cells, tissues or organs
- cultured aseptically on defined media
- contained in culture vessels
- maintained under controlled conditions of light and temperature

Dr. Toshio Murashige
University of California

Commercialization of Micropropagation 1970s & 1980s
Murashige 1974
Broad commercial application

Micropropagation Advantages

- From one to many propagules rapidly
- Multiplication in controlled lab conditions
- Continuous propagation year round
- Potential for disease-free propagules
- Inexpensive per plant once established



Micropropagation Applications

- Rapid increase of stock of new varieties
- Elimination of diseases
- Cloning of plant types not easily propagated by conventional methods (few offshoots/ sprouts/ seeds; date palms, ferns, nandinas)
- Propagules have enhanced growth features (multibranched character; Ficus, Syngonium)

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27/4/


Teeba
Labneh


MAG. STIRRER
HOT PLATE
Freed Electric
JENWAY

Culturing under aseptic condition

Growth chamber

Introduction:

GF-677 is one of the most suitable rootstocks for almond and peach used in calcareous soils to overcome lime-induced chlorosis.

This hybrid produces strong roots and has a good potential for pests and diseases.

Why Veg propagation

However, GF 677 cannot be propagated through seed, being a hybrid (Peach x Almond). Demand of peach and almond plants grafted on GF 677 may not be met by conventional multiplication of this rootstock; therefore in vitro propagation has become an favorable alternative than the conventional methods.

Material and methods:

I.Establishment stage

2.Multiplication

3 Rooting and Acclimatization

Establishment

- Two protocols were used for disinfesting the buds

1. Chlorox 20%
- 2. Chlorox 20% and &70 % ethanol for 1 minutes

Media for Establishment

- .The culture media containing Murashige and Skoog (MS), MS basal media

Multiplication

- For multiplication MS with 1ppm BA as a ctokinin was used compared to MS without hormone

Growth Chamber Requirements

Under growth chamber conditions, light intensity was maintained at 2500-3000 lux with an 8-hour dark period. Room temperature and relative humidity (RH) were 24-25°C and 45% respectively.

Results

- Disinfestation
- Exp 1

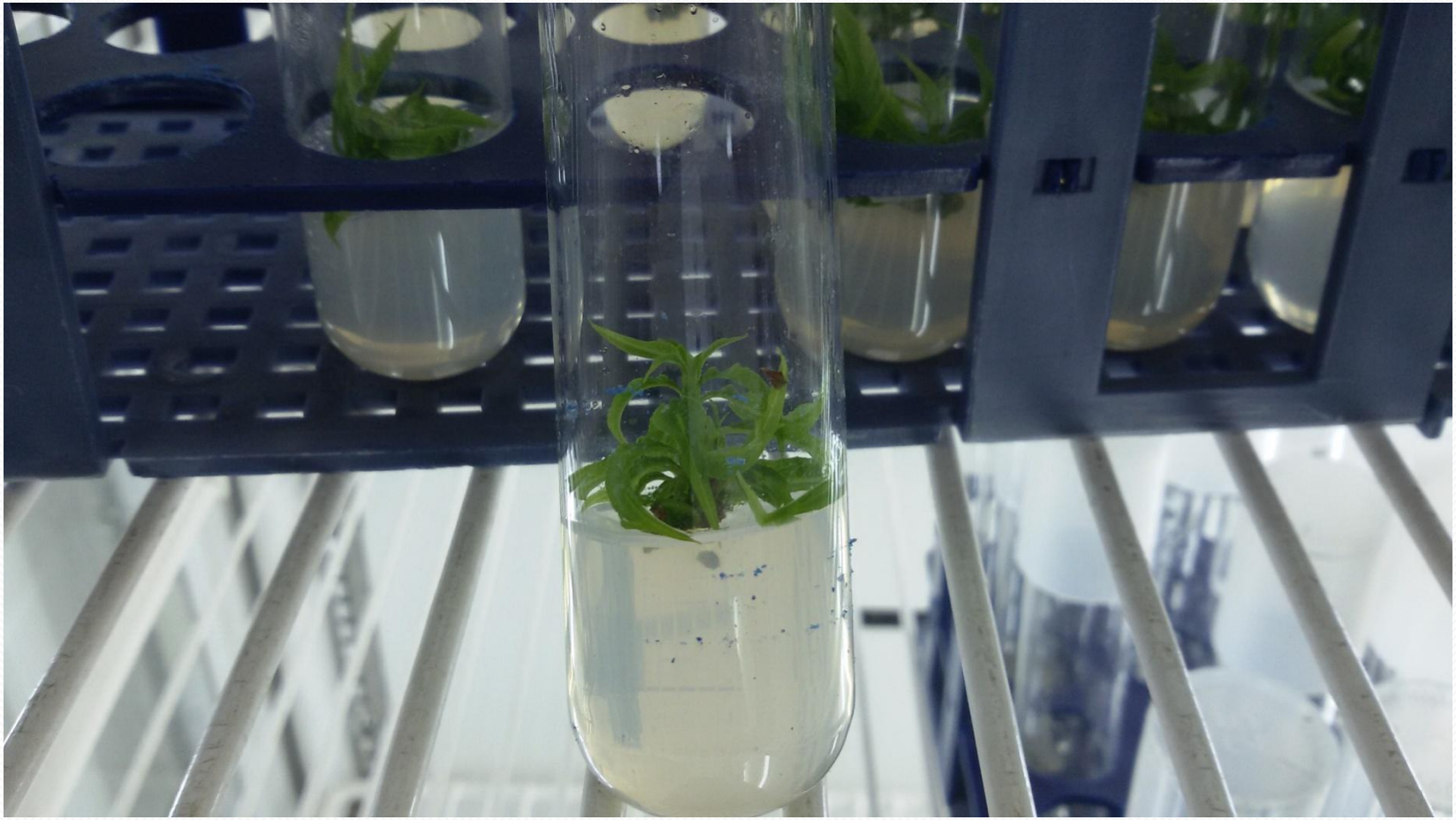
Treatment	Contamination%	Growth
Chlorox 20%	70.5	normal
Chlorox + alcohol	36.8	normal

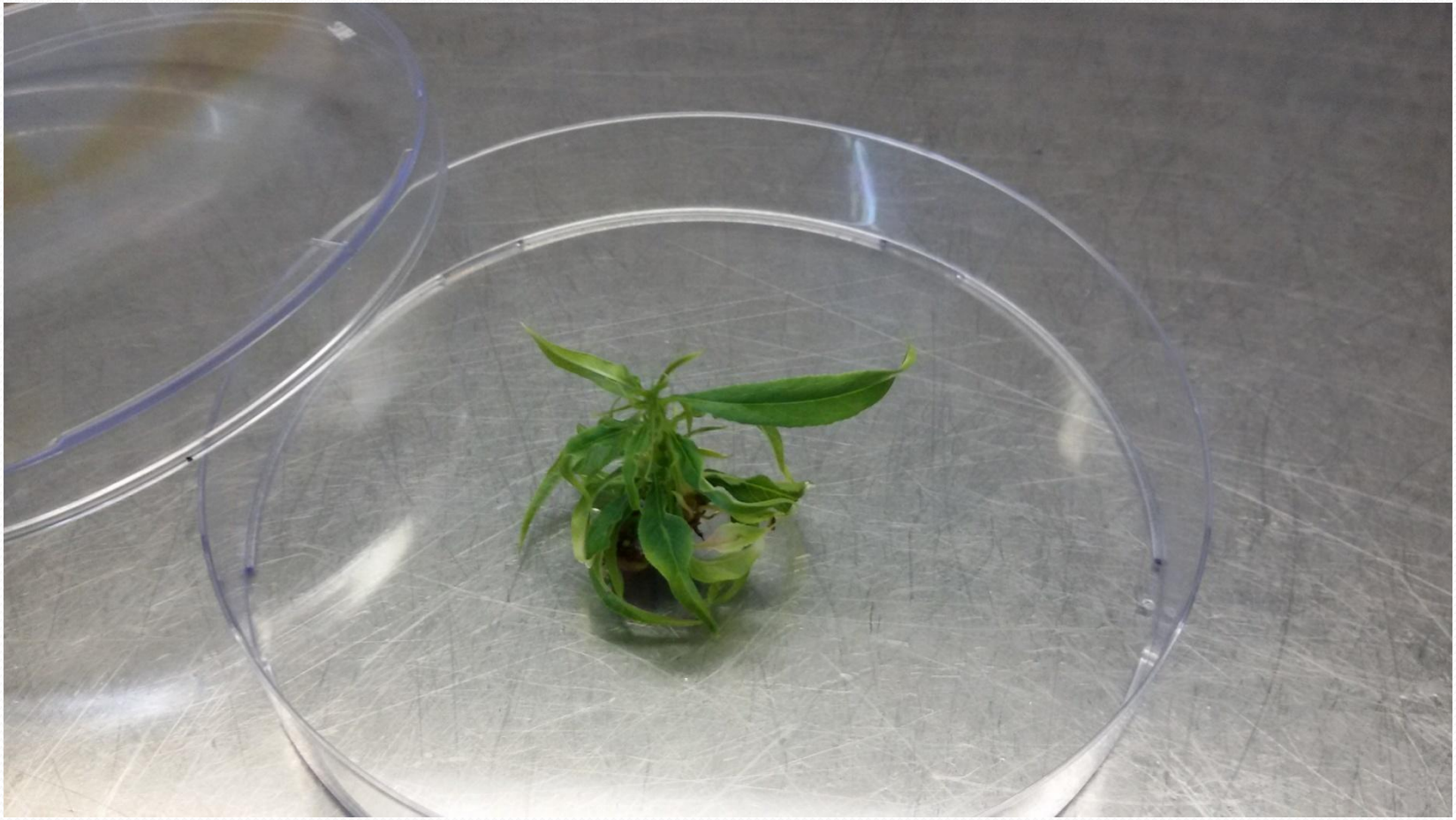
- Exp 2

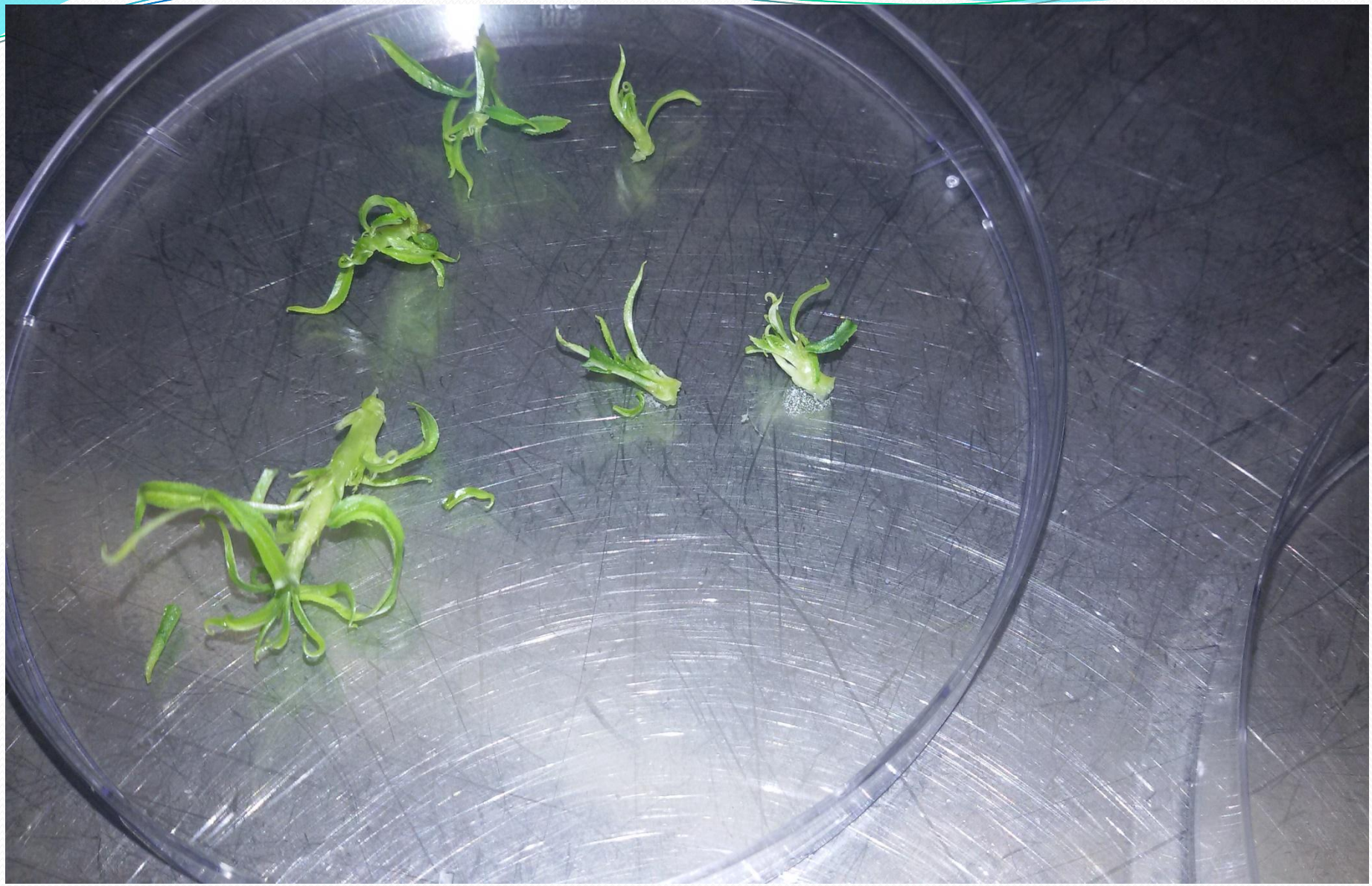
Treatment	Contamination	Growth
Chlorox 30%	25	weak
Chlorox and alcohol	0	weak

Multiplication

Treatment	Number of shoots	Average number of leaves
MS without hormone	1.5	4
MS + 1ppm BA	4.5	7







Conclusion:

- The results obtained showed that the use of ethanol after chlorox treatment reduced the contamination to 0%
- For shoot multiplication MS media with 1 ppm BA proved to be good for shoot multiplication. Other levels could be tried in the future..