

PIT-3254: CRYOPRESERVATION OF PROMISING MULBERRY GENETIC RESOURCES COLLECTED FROM DIFFERENT GEOGRAPHICAL REGIONS OF INDIA.

(Collaborative project with NBPGR, New Delhi)

Period : October,2008 - September, 2011

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Introduction:

The recent advancement of cryo-biological research and its role in long-term preservation of biological materials more particularly for the plants propagated through vegetative means have recognized the cryopreservation technique as practical and efficient biotechnological tools for long-term conservation. In this study, mulberry accessions collected through survey and exploration in North western, Northern, North-Eastern states and semi arid regions (Rajasthan and Madhya Pradesh) and also exotics and poor rooters selected targeted for cryopreservation.

Objectives:

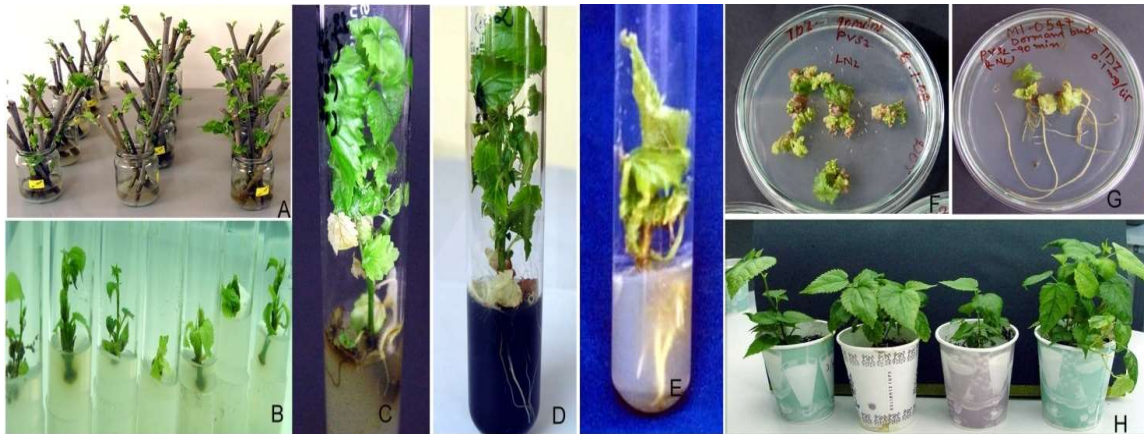
- Cryopreservation of winter dormant buds of different mulberry accessions using dehydration and slow freezing protocol.
- Application of plant vitrification protocol for cryopreservation of apical shoot tips and winter dormant buds of different mulberry accessions

Outcome:

Sl. No.	<i>Morus</i> species	No. of Exotic accessions	No. Indigenous accessions	Total No. of accessions	Survival range (%)	Average survival (%)
1	<i>Morus alba</i>	02	11	13	0-80	49.84
2	<i>Morusbombycis</i>	01	--	1	66.67	66.67
3	<i>Morusindica</i>	-	43	43	0-70	30.67
4	<i>Morus laevigata</i>	--	02	2	10-20	15.00
5	<i>Moruslatifolia</i>	05	02	7	30-60	36.11
6	<i>Morus macroura</i>	01	--	1	33.33	33.33
7	<i>Morusmulticaulis</i>	01	--	1	20	20.00
8	<i>Morusspp.</i>	26	03	29	0-40	20.17

- ❖ The survival (%) of winter dormant buds of different mulberry accessions ranged from 0 % in 16 accessions, 20 % in 25 accessions, 21-40 % in 37 accessions, 41-60% in 14 accessions and 61-80 % in 8 accessions.
- ❖ Species-specific variations were observed for the survival of the cryopreserved dormant buds.

- ❖ Higher survival was recorded in the accessions belonging to *Morus bombycis* (66.66%), *Morus alba* (49.84%) followed by *M. indica*(30.67%).



Recommendations/ Utilization:

- ✓ The cryopreservation technology developed is safe and efficient for long term conservation of mulberry genetic resources.
- ✓ Vitrification technique can be used for cryopreservation of mulberry, more particularly for the accessions, which are difficult to cryo-preserve through dehydration and slow freezing protocol.

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