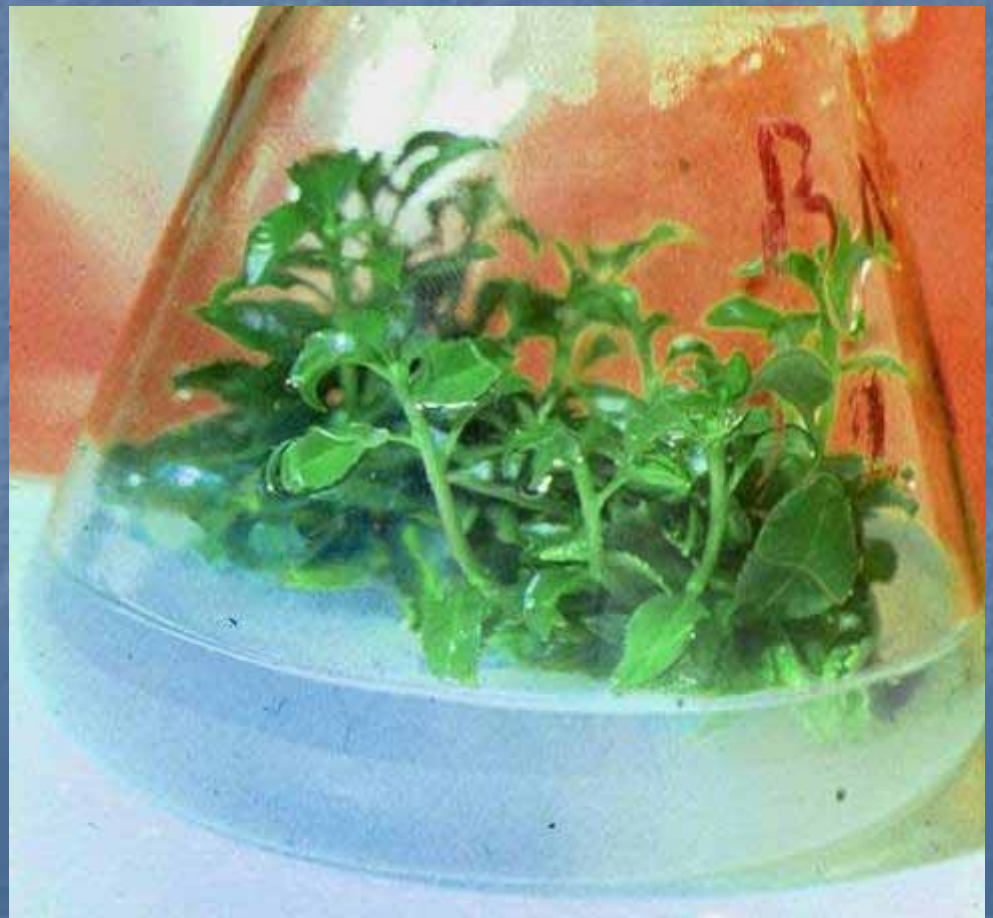
The Use of Biotechnological Technique for Creating of New Genotypes of Horticultural Plants



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The main advantages of biotechnological techniques:

- - obtaining of hybrid seedlings from embryos of early development stages (especially in case of distant hybridization);
- - obtaining of somaclonal variants with valuable characteristics;
- - obtaining of somatic hybrids;
- - creation of transgenic organisms;
- - identification and passport system of varieties and forms by means of molecular-genetic marking and phylogenetic relationship determination;
- - reliable pathogen testing on the base of specific proteins and/or nucleic acids;
- - gene's expression control;

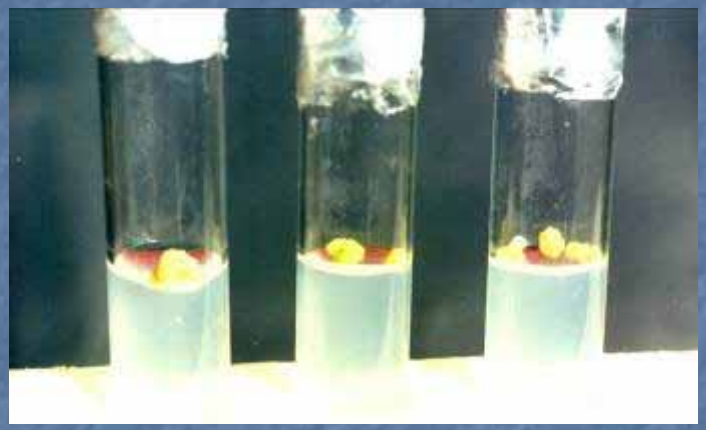
The main advantages of biotechnological techniques:

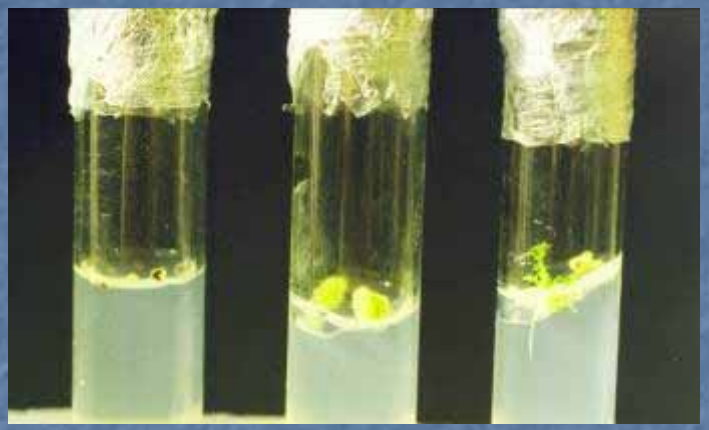
- - the possibility of healthy plant material obtaining;
- - rapid propagation of valuable clones;
- - progeny obtaining for difficultly propagated forms;
- - the possibility to work during whole year and planning of material realizing to determinate term;
- - seddlings mass propagation on juvenile stage;
- - long term *in vitro* material storage.

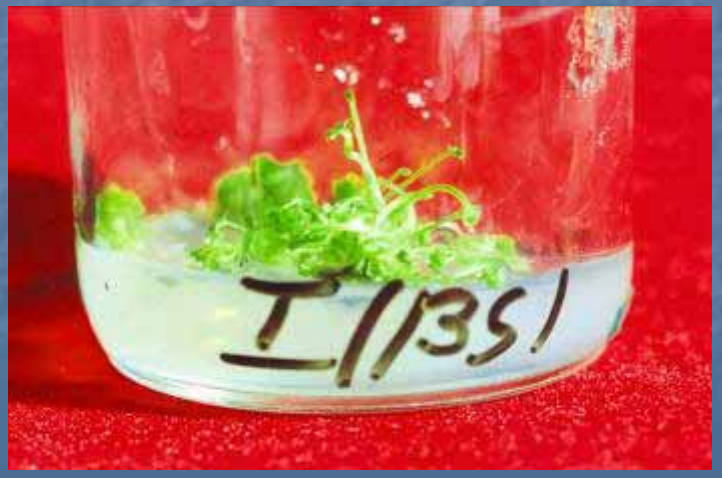
The possibilities of genetic base widening for horticultural plants:

- isolated embryo culture for hybrid progeny obtaining during distant crossing;
- plant regeneration and/or independent organs in complex explants culture for obtaining somaclonal or gametoclonal variants;
- mutagenesis *in vitro* with the following plants regeneration;
- manipulations with ploidy for obtaining of organisms with alternated chromosome number;
- protoplasts culture (transformation, somatic hybridization);
- agrobecterial transformation.

Strawberry plants regeneration in anther and leaf discs culture







Sour cherry shoots regeneration in callus tissue and leaf discs culture

Raspberry shoots regeneration during agrobacterial transformation

Regenerants obtaining from specially prepared shoots

Ri-phenotype expression in sour cherry

Traditional technique of embryo culture

Improved isolated embryo culture technique

Hybrid of sour cherry (B-101), obtained by means of embryo culture

Shoots regeneration from cotyledons of hybrid plum forms

РОССИЙСКАЯ ФЕДЕРАЦИЯ

ПАТЕНТ

НА ИЗОБРЕТЕНИЕ

№ 2189132

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СПОСОБ ВЫРАЩИВАНИЯ ГИБРИДНЫХ СЕЯНЦЕВ ПЛОДОВЫХ РАСТЕНИЙ

Патентообладатель(и):

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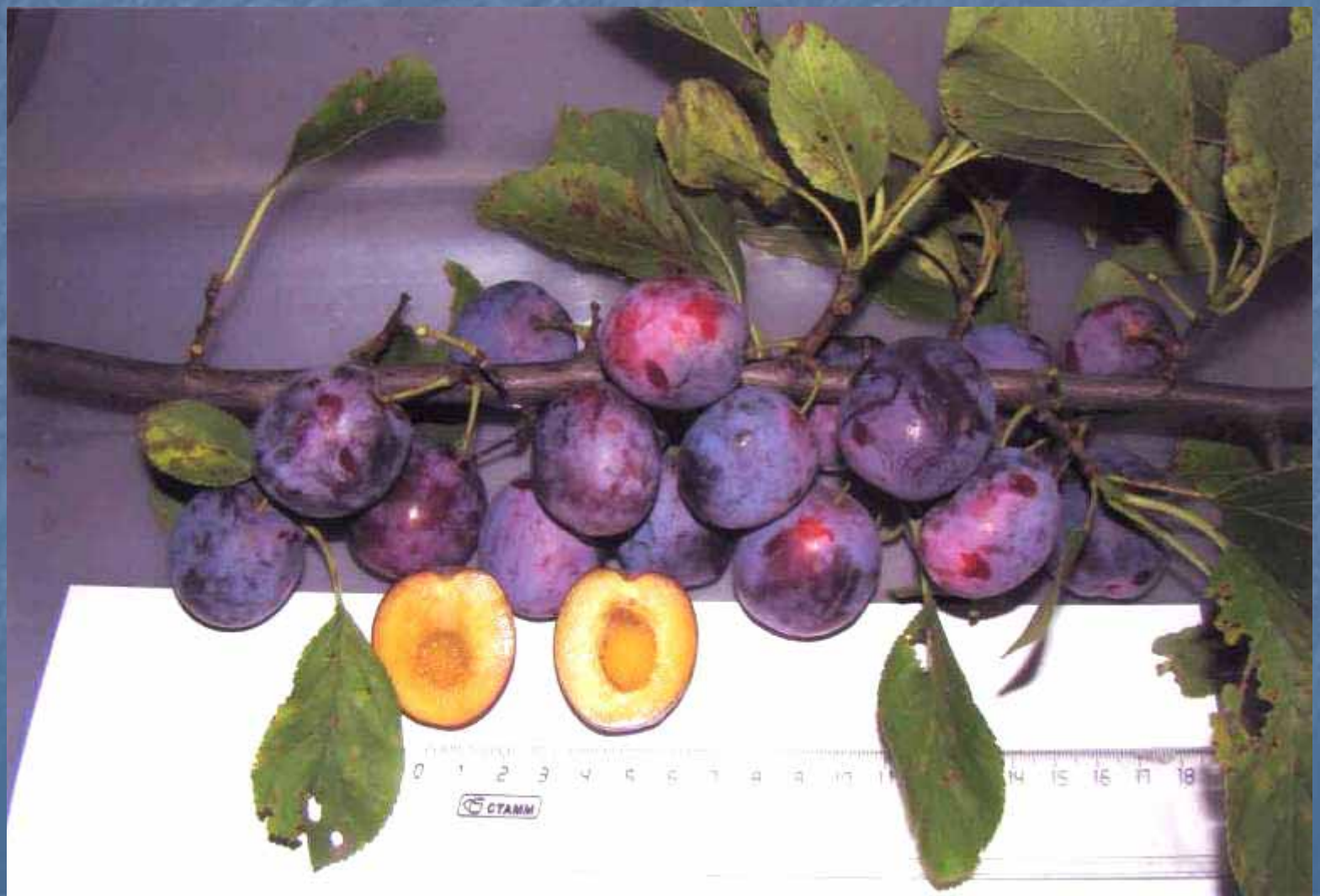
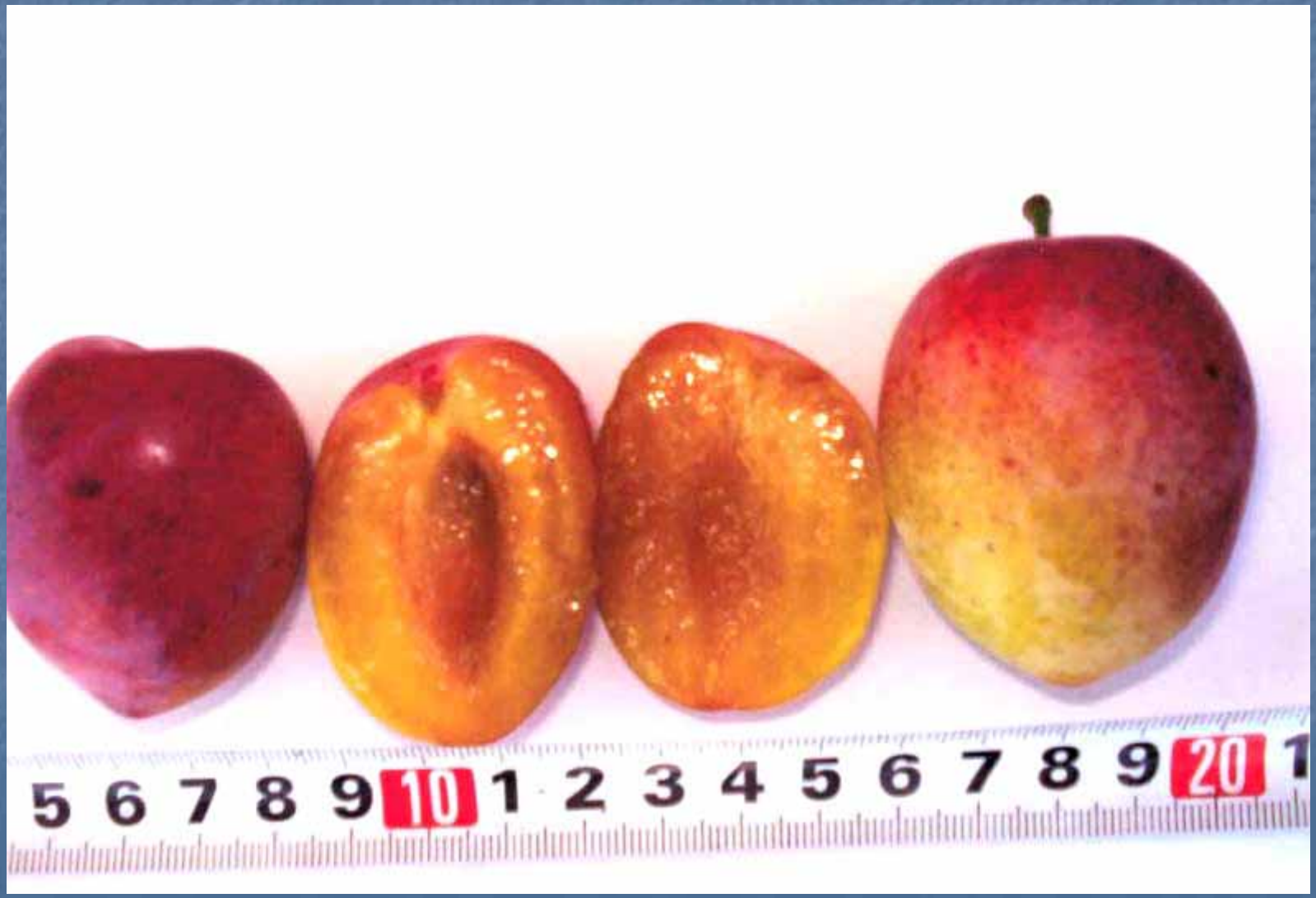
А.Л. Кирчанов

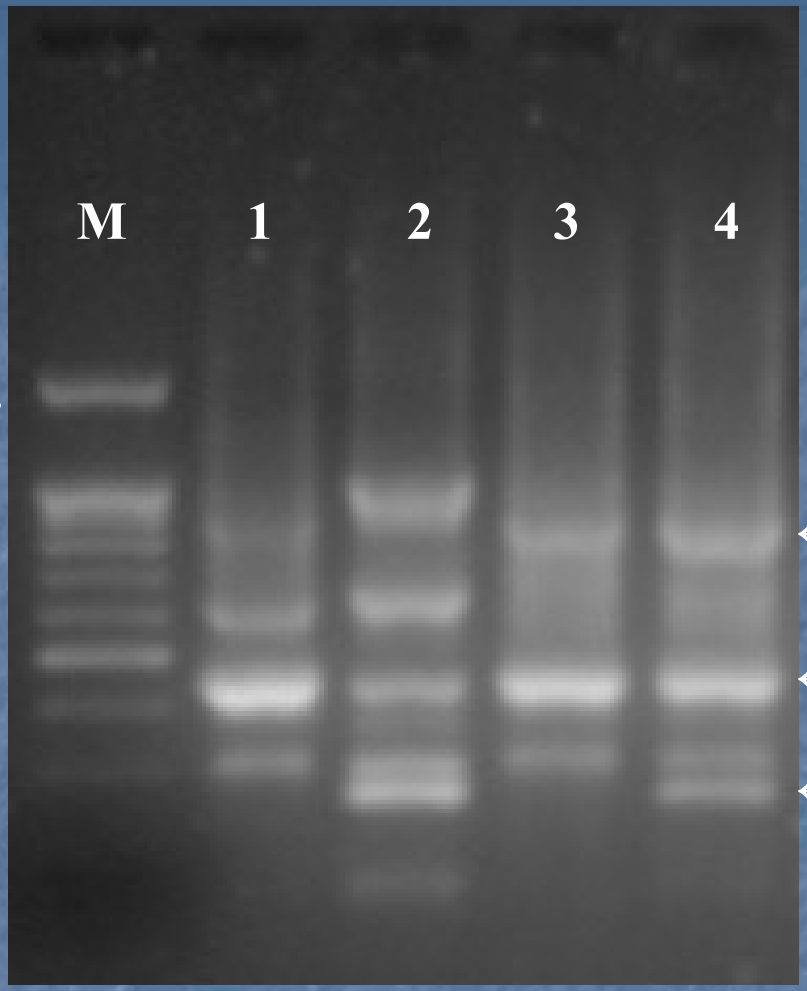
Shoots regeneration in isolated cotyledons culture

New hybrid from crossing *Prunus domestica* X *Prunus divaricata*



Fruits of plum Tulitsa





DNA fragments of plum, obtained by means of primer Paw S5 amplification. M – marker of molecular mass 100 bp + 1,5 Kb. 1 – Tulitsa (Kubanskaya kometa × Naratch), 2 – Kubanskaya kometa, 3 – Naratch, 4 – Velitchavaya (Kubanskaya kometa × Naratch). Pointer shows fragments inherit from parents.

Culture storage *in vitro*

THANK YOU FOR YOUR ATTENTION!