

VISOKOŠKOLSKO OBRAZOVANJE BIOTEHNOLOGA U HRVATSKOJ



PROIZVODNJA

IZVOZ

TEHNOLOGIJA

STRUČNJACI

EDUKACIJA

1942, Milisav Demerec at Cold Spring Harbor



-a mutant strain of *Penicillium* was isolated that would grow abundantly when submerged in a liquid nutrient.

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Interspecific Recombination in Streptomyces

Genetic recombination of Streptomyces was first reported by Bennett and Spivey-Goodman in 1935. By crossing different nutritional mutants of *Streptomyces coelicolor* various recombinant and prototrophic types have been obtained.

Several authors have obtained true recombination by crossing different mutant strains of *S. coelicolor*. Murray, recombination of different nutritional mutants of *S. aureus* and *S. protuberans*, reported by *S. roseus*, *S. aureus* and *S. protuberans*, reported by *S. roseus*.

In this work interspecific experiments have been carried out with mutants of the following species of Streptomyces: *S. roseus* A.Y.C.C. 1910, *S. coelicolor*.

Nutritional mutants of *S. roseus* and *S. coelicolor* were obtained by ultra-violet radiation using the replica-planting technique. Mutants of *S. coelicolor* were kindly supplied by Prof. G. Bennett, Institute Superior de Biología, Havana. Nutritional mutants were used because of their stability and suitability for recombination.

Two parental strains have been inoculated together on 2P.C. Coloured media were suspended in sterile water filtered through a sinter filter in order to remove hyphal fragments and clusters of spores, and seeded on selective media.

The number of recombinant colonies recovered in various experiments is reported in Table I.

Recombination has been obtained in all the interspecific crosses examined, namely, *S. roseus* × *S. coelicolor*, *S. roseus* × *S. protuberans* and *S. coelicolor* × *S. protuberans*. Recombination rates ranged from about 10% to 100% according to the various strain used and the selective plating media.

Considerable changes in pigmentation of recombinants were observed in the progeny of strains *S. roseus* × *S. coelicolor*, ranging from cream white colour (S. roseus) through grey, pink and red, to strong blue pigment (S. coelicolor), more intense than the normal colour of this species.

Agar-plate recombination was obtained from the combination of strains *S. roseus* and *S. coelicolor* 2P.C. and *S. coelicolor* 2P.C. and *S. coelicolor* 2P.C. Prototrophic recombinants were obtained from all the interspecific crosses tested with parent, 2P.C.

The recombination of the nutritional mutants of Streptomyces from the laboratory, as well as from the biochemical point of view, results in a recombinant strain of Streptomyces which, when grown on a selective medium, such as 2P.C., is able to produce a recombinant, *S. coelicolor*, more intense than the normal colour of this species.

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Makita Azañavil
Assistant of Department of Microbiology,
Faculty of Technology,
University of Zagreb, Yugoslavia.

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1956. Curriculum iz biotehnologije

Sveučilište u Zagrebu



1700 studenata
101 nastavnik
45 asistenata

Bilinojgostvo
Stočarstvo
Uređenje krajbroza

148
Dipl. Ing. 110
godišnje
130



1300 studenata
65 nastavnika
69 asistenata



750 studenata
51 nastavnik
34 asistenata

Šumarski odsjek
Drvnotehnološki odsjek

Prehrambena tehnologija
Biotehnologija

Studiji agronomije i prehrambene tehnologije izvan Zagreba

- Sveučilište u Osijeku
 - Agronomski fakultet
 - Prehrambeno-tehnološki fakultet
- Sveučilište u Splitu
 - Kemijsko-tehnološki fakultet
- Veleučilišta

Reforma visokog školstva

- Povijesna prilika
- Potreba usuglašavanja – usporedivost - mobilnost
- Novi programi
 - Novi sadržaji
 - Uključivanje poslodavaca
 - Naglasak na praktični rad
 - Sposobnosti umjesto znanja
 - Novi profili stručnjaka

Reforma visokog školstva

- Financiranje
 - Novih sadržaja
 - Sveučilišta (lump sum)
 - Projekata
- Nastavnici
 - Uključivanje hrvatskih i stranih stručnjaka iz inozemstva u nastavu (preddiplomsku, diplomsku, doktorsku)

Reforma visokog školstva

- Primjena istraživanja
 - Programi Ministarstva
 - Intelektualno vlasništvo
 - Na projektima MZOŠ iz područja Biotehnologije radi oko 260 znanstvenika
 - u zadnjih 5 godina 220 CC/SCI godišnje
 - istovremeno 6 -7 patenata godišnje
 - Nedostatak patentnih savjetnika i ureda

Ukratko

- Reforma visokog školstva može uspjeti samo ako
 - Fundamentalno promjenimo pristup visokoškolskom obrazovanju
 - Omogućimo kvantitativno i kvalitativno financiranje
 - Omogućimo primjenu istraživanja i zaštitu intelektualnog vlasništva