



DESIGN OF A RATIONAL SELECTION SYSTEM FOR THE PRODUCTION OF GENTAMYCIN BY *Micromonospora echinospora*

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Introduction. Gentamicin is a polycationic molecule that belongs to the aminoglycoside family. This antibiotic has a specific affinity to ribosome (16S-rRNA), which inhibits protein synthesis and due to that its use as a bactericide in a broad spectrum has spread⁽¹⁾. Furthermore, in the food industry its use has considerably increased since favorable effects as a prophylactic against plant pathogens⁽²⁾. Therefore, the objective in the present work is to establish the phenotypic selection factors, which determine the improvement of gentamicin production.

Methods. Mutants of *Micromonospora echinospora* were obtained through classic genetics. The mutants strains were selected by the following criteria: insensibility to 2-desoxiglucosa (2DG)⁽³⁾, pigment absence and aminoglycosids resistance⁽⁴⁾. Finally, the gentamicin production of the strains with greater survival percentage in selection media was quantified.

Results. The conditions of mutagenesis for protoplasts were established by UVS 250nm to 40µw/cm². The strains both aminoglycosides resistance and 2DG insensibility did not show significant differences in the gentamicin production.

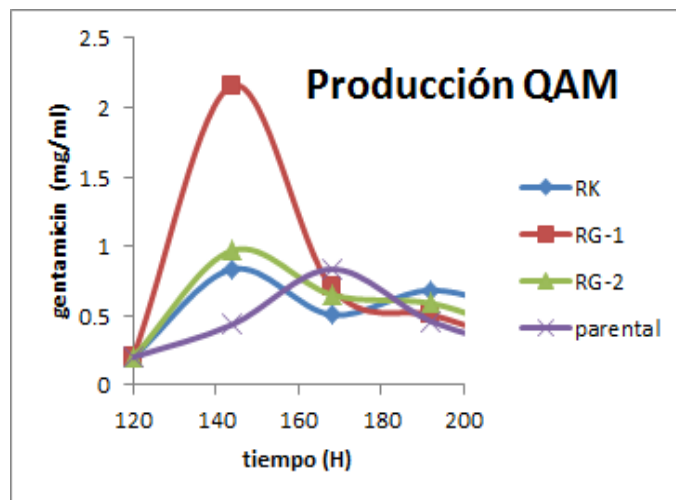


Fig. 1. Flask production average of QAM strain being present only antibiotic resistance showed the highest

Conclusions. With the purpose to establish a rational selection system of overproducing gentamicin strain, in sequence of importance are the following criteria selection established:

1. - Aminoglycoside resistance > 100 µg / ml
2. - Pigment absence
3. - 2DG insensitivity

The kanamycin resistant strains were the greater gentamicin production.

References.

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Gentamicin production g/L				
	pigment	2DG	gentamicin	kanamycin
QAM	+	0	0.9	0.8
	-	0	1.5	2.3
253	+	1.8	0.9	1.1
	-	0.8	1.1	1.9
41	+	1.5	1.3	1.5
	-	1.1	1.1	1.2
55	+	1.1	0	0
	-	1.4	0	0

Table1. It shows gentamicin production per phenotype of the eight selected mutants strains.

