IMPROVEMENT PROCESS OF PECTIN LYASE PRODUCTION BY A RECOMBINANT STRAIN OF *PENICILLIUM GRISEOROSEUM*

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Pectinases are hydrolytic enzymes that have been used in industry for quality increase of products and for efficiency improvement of the fruit juice and wine clarification. The fungus *Penicillium* griseoroseum has been studied for our group about genetic and physiological aspects involved in the production of pectin lyase. These studies results in the obtainment of a recombinant strain of *P. griseoroseum*, named 105, with additional copies of *plg*1 gene, which codes pectin lyase (PLG1) in *P. griseoroseum* under the control of a strong and constitutive heterolog promoter. The recombinant strain 105 produces 62 times more PLG1 when cultivated in sugar cane broth than the wild type strain cultivated in its optimum conditions. In order to improve the process of PLG1 production, different conditions were evaluated, amongst them inoculum amount, agitation, aeration, carbon source. Moreover, we tested pectinesterase, polygalacturonase, cellulose and protease activity in the culture sobrenatant. The PLG1 specific activity was bigger when sugar cane broth was used as carbon source and low aeration in Bio Flow IV New Brunswick Scientific bioreactor. We detected low values of polygalacturonase and pectinesterase activity and no proteolytic and cellulosic activity. Our results supply great expectations for the conduction of improving experiments in industrial scale and for the transference of the generated technology. Financial support: FAPEMIG and CNPq. Keywords: *Penicillium*; Pectin Liases; Production.