PECTIN EXTRACTION FROM PASSION FRUIT PEEL USING FUNGAL POLIGALACTURONASES PRODUCED IN FED BATCH

Juliana Vasco, Natalia L. Rojas, Luz Andrea Ruiz, Marta Echeverry, Arley D. Zapata Zapata, Sebastián Cavalitto.

Pectinolytic enzymes, useful in food industry to extract and clarify fruit juices and wines, could be used as an alternative method of pectin extraction from by-products of this industry. In the yellow passion fruit (*Passiflora edulis*) the peel represents about half of the fruit mass which, as a major waste, makes necessary to find a feasible way to turn them into useful products, seeking a positive environmental impact. The main objective of this work is to produce high quantities of a recombinant polygalacturonase, PG1, overexpressed by *Saccharomyces cerevisiae* in fed batch cultures in order to study its application in the extraction of pectin from yellow passion fruit and to compare it with a protopectinase from *Geotrichium klebanhii*, PPase-SE.

Fed batch cultures in synthetic medium were performed, adjusting the concentration of inducer during feeding phase. Pectin extraction was performed in shaked flasks for 12 hours using yellow passion fruit peel in citric-phosphate buffer (pH4.0). Galacturonic acid was measured as an indicator of pectin solubilization.

Results showed that the glucose:galactose ratio in the feeding medium strongly influences in the enzyme productivity, obtaining a productivity of 2.4 U/ml.h. On the other hand, recombinant PG1 generates a lower pectin solubilization than PPASE-SE, but in the same order of magnitude, yielding a maximum of 2600 ppm in 12 hours, in comparison with 4290 ppm obtained by PPASE-SE in 6 hours. It could be concluded that PG1 could be used for the utilization of by-products of the juice industry in order to obtain solubilized pectin.

Note: preference for presentation in poster.