

The URM Culture Collection Contributing in Studies with Yeasts Strains Producing of Pectinase and α -Glucosidase to Industrial Use

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Abstract:

The URM Culture Collection is registered on the Commonwealth Mycological Institute (CMI) as University Recife Mycology-URM and associated to World Federation for Culture Collections (WFCC). This collection maintains cultures of filamentous fungi and yeasts isolated from various substrates of biotechnological, ecological and medical importance. The yeasts have been characterized as the production of metabolites such as enzymes of industrial application. Pectinases and β -glucosidases are produced by a large number of species distributed among plants, fungi and yeasts and are widely used in various biotechnological processes in the food, beverage and biofuels industries. This study reports a comparison between the activities of these enzymes in yeast strains stored at URM Culture Collection, Federal University of Pernambuco, Brazil. Sixteen yeast strains belonging to *Candida*, *Kluyveromyces*, *Pichia*, *Rhodotorula*, and *Saccharomyces*, genera were selected for quantitative production of pectinase and β -glucosidase. Various pectic enzymes were obtained through the hydrolysis of pectin and the activity was detected on the basis of hydrolytic reaction with 4-methylumbelliferyl-D- β -glucopyranoside (MUG) and p-nitrophenyl β -D-glucopyranoside (PNPG) as substrates. Four strains of yeasts were able to produce different enzymes which are included in the pectinolytic complex. *K. marxianus*, URM4405 was able to produce polygalacturonase, pectin lyase and pectin esterase. The β -glucosidase activity was detected in eight strains, of which *C. peltata*, URM4681 and *S. cerevisiae*, URM5107 were selected as the best producers for this enzyme. Based on these data we conclude that yeasts such as *K. marxianus*, and *C. peltata*, URM4405 URM4681 exhibited a great production of pectinase and β -glucosidase, respectively, with clear potential for industrial use and research applications. These data may certainly contribute to other studies associated to the development of science and Brazilian economy.

Key words: Culture Collection, Industrial yeasts, Pectinase, α -glucosidase