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Screening for the best β -glucosidase activity in field isolates and establishing the electroporation protocol for overexpression

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Bacterial enzymes play important roles in biotransformation. Most of them can biodegrade complex compounds into simpler ones. β -glucosidase were noted in association with the pharmacological actions of herbal medicines. It has been reported that the antimetastatic or anticarcinogenic activity of ginsenoside Rb1 could not be showed until it was biotransformed by intestinal bacteria. Crocin, amygdalin, geniposide, puerarin, ginsenoside Re, hesperidin, poncirin, glycyrrhizin, and baicalin must be biotransformed by human fecal microflora in order to exhibit their cytotoxicity against tumor cells. In order to further study this phenomenon, we need the strain which have good β -glucosidase. In this study, we screened 162 bacteria strains for the best β -glucosidase activity and then optimize them. *Lactobacillus spp* -3--67 isolate showed the best β -glucosidase activity. And then, an electroporation protocol was established for this strain in order to be further used as an overexpression organism. A high enzyme production strain could be used as a biotransformation agent with widely pharmacological applications.

Key words: β -glucosidase; electroporation