Halotolerant bacteria producing extracellular hydrolytic enzymes isolated from Tarapoto hot springs in Peru

Jackelyn E. Borja, Amparo I. Zavaleta, Liz Mendoza, Carmen Peña

Laboratory of Molecular Biology, Faculty of Pharmacy and Biochemistry. Universidad Nacional Mayor de San Marcos

The aim of this study was to characterize halotolerant hydrolase producing bacteria from Tarapoto hot springs in Peru. For that, water samples were collected and plated on trypticase soy agar containing 5% sodium chloride at 37 °C for 24 h. Fourteen aerobic strains were selected according their phenotypic features, and then they were tested to find the strains capable to produce amylases, esterases, proteases, cellulases and galactosidases. The selected isolates were grouped according to hydrolysis profile in the following six groups: I (starch), II (lactose), III (Tween 80 and gelatin), IV (tween 80 and starch), V (starch, gelatin, lactose) and VI (tween 80, starch and gelatin) corresponding in number of bacteria to 1, 1, 1, 5, 1 and 5 respectively. 86% (12/14) of isolates hydrolyzed more than two substrates, but none carboxymethylcellulose, 93% (13/14) grow optimally between 30 and 40 °C at pH 7, all of them showed mucous colonies. The cultural characteristics of the isolates and the hydrolysis profiles indicate that there are at least 6 species or bacterial strains producing extracellular hydrolytic enzymes of great biotechnological interest.