

**COLD-ADAPTATION AND ALKALINE HYDROLYTIC PROPRIETIES OF THE POLAR
STREPTOMYCETES PREDICTION ON PLATE ASSAY, BASED ON INSOLUBLE
CHROMOGENIC SUBSTRATES WITH AZURINE CROSS-LINKED**

Mihaela COTARLET*, Teodor NEGOITĂ, Gabriela BHRIM*, Peter STOUGAARD*****

**Dunarea de Jos* University of Galati, Faculty of Food Science and Engineering,
Bioengineering Department, 111, Domeasca St., Tel./Fax: +40 236 460165

**Romanian Polar Research Institute, C.P. 42-29, Bucharest, Romania

***University of Copenhagen Faculty of Life Sciences Department of Ecology Genetics
and Microbiology Section, Thorvaldsensvej 40, 1871, Frederiksberg C, Denmark

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Abstract

A semi-qualitative screening based on protease and amylase activity evaluation in a basal agar medium supplemented with insoluble chromogenic substrates based on AZCL (Azurine-Crosslinked with amylose or casein) using a plate assay was used for selecting the polar streptomycetes able to produce cold actives and alkaline amylases and proteases. This technique provides a specific and rapid simultaneous detection of high active hydrolase producing strains based on the visible solubilization of small particles of AZCL and the formation of haloes on plates. It has a great potential in increasing the efficacy of screening streptomycetes able to produce hydrolytic enzymes. This study revealed the potential of the selected streptomycetes isolated from polar soils to biosynthesize amylases and proteases cold-adapted at low temperatures (from 5 to 20°C) and alkaline pH values (8 to 9).

Keywords: *Streptomyces* sp., polar strains, proteases, amylases, cold-adapted enzymes, plate assay screening, insoluble chromogenic substrates, Azurine-cross-linked (AZCL)