



UNIVERSITÀ DEGLI STUDI DI NAPOLI "FEDERICO II"

Dipartimento di Scienze Chimiche

Dottorato in Scienze Chimiche - XXXIV Ciclo

Research Doctorate (Ph.D.) in Chemical Sciences

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Project Information

1 - Title

Study of psychrophilic bacterial lipopolysaccharides (LPSs) and extracellular polysaccharides (EPSs) structural features in response to temperature fluctuations in cold environment.

2 - Key words

Psychrophiles, Lipopolysaccharide, Exopolysaccharide, NMR, Mass spectrometry

3 - Abstract

Cold environments experience temperatures that are close to or below the freezing point of water. While long considered to be inhospitable to life, they have been shown to harbor abundant and diverse bacterial and archaeal communities, which form a significant portion of the Earth's microbial biomass. A better comprehension of the specific molecular mechanisms involved could also help us in predicting the global warming outcomes on Polar microbial communities. Over the last two decades, research has been focused on the study of cold-adapted enzymes/proteins and on genome-wide comparisons. Few papers focused on the structural determination of microbial polysaccharides in view of adaptation are reported, although glycoconjugates (LPS) and exopolysaccharides (EPS), due to their external location, were suggested to be involved in polar colonization.