



**Università degli Studi di Napoli Federico II**

**PhD in Biotechnology - 38<sup>th</sup> cycle**

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**Extremophiles - green and eco-friendly compounds  
producers for Next Generation Industrial  
Biotechnology**

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To date, industrial biotechnology is still not economically competitive with chemical industries. There is therefore a need for the development of a “Next Generation Industrial Biotechnology” (NGIB) based on less freshwater consumption, energy-saving, and long-lasting open continuous intelligent processing. Extremophiles are ideal platforms for successful NGIB, given the presence of inhospitable conditions for other bacteria, so their use allows bioprocesses conducted under unsterile (open) conditions still ensuring the integrity and quality of the end-product.<sup>[1,2]</sup> The main aim of this project is the search for new enzymes and molecules exploitable in industrial sectors as eco-friendly substitutes for standard molecules. Extremozymes have great potential for applications in various industrial sectors including agricultural, pharmaceutical, and chemical fields.<sup>[3]</sup> To achieve this goal, alternative strategies will be used to search for enzymes and/or bioactive molecules produced by bacteria isolated in extreme environments following the principles of the NGIB.

**References**

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