

## **A DIMERIC AND CA<sup>2+</sup> INDEPENDENT $\alpha$ -AMYLASE FROM A NEWLY ISOLATED B. SUBTILIS US572 STRAIN: BIOCHEMICAL AND MOLECULAR CHARACTERIZATION**

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**N**ew amylase (AmyKS) was purified from a newly isolated *Bacillus subtilis* US572 strain. The optimum pH and temperature recorded for enzyme activity were 6 and 60 °C, respectively. It displayed a marked thermostability with a half-life of 10 min at 70 °C. AmyKS is a Ca<sup>2+</sup> independent enzyme and able to hydrolyze soluble starch into single sugars with predominant proportions of maltose and maltotriose. It presents a high affinity towards soluble starch with a Km value of 0.252 mg mL<sup>-1</sup>. The analysis of the enzyme in native and denaturing conditions suggests that it has a dimeric form (140 kDa). This is the first report on the purification and characterization of a non-maltogenic *Bacillus*  $\alpha$ -amylase with a dimeric structure. A 3D model and a dimeric model of AmyKS were constructed and accordingly evidence was found about the high substrate affinity and the high catalytic efficiency of this enzyme.

### **Biography**

Karima Salem had her Degree of Applied License in Medical Biology (distinction very good) from the Higher School of health Sciences and Techniques of Monastir-Tunisia. In 2013, she had her diploma of Microbiology and Molecular Epidemiology Research Master's degree, (distinction good) from the Sciences Faculty of Tunis. In 2016, she got her 3rd diploma of Biotechnological Engineering (distinction very good and major of her promotion) from the Polytechnic School of Sousse. She spent four months in the Microbiological and Biotechnological Processes (PMB)-University of Bourgogne-France (for her end of studies' project). Actually, she is a Biology Engineer and she is in 3rd year of PhD at the National Engineering School of Sfax (ENIS)-Tunisia. Her thesis is in collaboration with the Biocrystallography and Nanostructure Laboratory, University of Verona-Italy. She has co-authored in three papers and she submitted two others.

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