

EXTRACELLULAR HYDROLYTIC ENZYMES OF YEASTS ISOLATED FROM FRUIT AND BEET PEELS IN ALGERIA

Fatima-Zohra Kenza Labbani^{1,2,*}, Scheherazad Dakhmouche^{1,2}, Leila Bennamoun^{2,3},
Amel Ait-Kaki^{2,4}, Tahar Nouadri^{2,3}

¹Assia Djebar Teachers Training School of Constantine, Department of Natural Sciences, Ville Universitaire Ali Mendjeli, 25000 Constantine, Algeria;

²Frères Mentouri Constantin I University, Faculty of Natural Sciences, Laboratory of Microbiological Engineering and Applications, BP 325, Route de Ain El Bey, 25017 Constantine, Algeria;

³Frères Mentouri Constantin I University, Faculty of Natural Sciences, Department of Biochemistry & Cellular and Molecular Biology, BP 325, Route de Ain El Bey, 25017 Constantine, Algeria;

⁴Frères Mentouri Constantin I University, The Institute of Nutrition and Food and of Agri-Food Technologies, BP 325, Route de Ain El Bey, 25017 Constantine, Algeria;

*Corresponding Author F. Z. K. Labbani, e-mail: labbani.fatimazohra@ensc.dz;

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ABSTRACT

Forty-two yeast strains were isolated from natural sources in Algeria. Based on the sequence analysis of the 26S ribosomal RNA D1/D2 domain they were identified to be of 8 species belonging to the genera *Aureobasidium*, *Candida*, *Clavispora*, *Hanseniaspora*, *Pichia*, *Rhodotorula* and *Vishniacozyma*. All yeast isolates were screened for cellulase, amylase, protease and lipase production. Six strains of *Aureobasidium pullulans*, *Rhodotorula diobovata* and *Vishniacozyma tephrensensis* demonstrated ability to produce at least one extracellular enzyme. The enzyme activity index (EAI) for cellulase was noted to be prominent in the isolates of *A. pullulans* (A1, A3, A5) and *V. tephrensensis* A4 as 2.3 and 2.1, respectively. Highest EAI for amylase and protease was also seen in *A. pullulans* isolate A1 (EAI = 2.9) and isolate A3 (EAI = 1.9), respectively. For lipase, the EAI was superior in *V. tephrensensis* A4 (EAI = 1.5) when compared to the isolates of *R. diobovata* (B1, O5) (EAI = 1.4) and *A. pullulans* A5 (EAI = 1.3). To the best of our knowledge, this is the first report of cellulase and/or lipase activity in *V. tephrensensis* and *R. diobovata* strains associated with apple, orange and beet peels in Algeria. Furthermore, the strain *A. pullulans* A5 showed enzymatic activities for all the enzymes screened in the current work. Thus, our study can provide further information about the diversity and enzyme production by yeasts and demonstrated the potential for yeast isolated from fruit and beet peels as sources for extracellular hydrolytic enzymes.

Keywords: yeast isolation, fruit peels, beet peels, extracellular hydrolytic enzymes, molecular identification.