P20

Enhanced Stability of Laccase by Xylitol

Andre Zille[a], Diego Moldes[a], Ramona Irgoliç[b], Artur Cavaco-Paulo[a]

[a]Department of Textile Engineering, University of Minho, Campus de Azurém, P-4800 Guimarães, Portugal. [b]Textile Department, Faculty of Mechanical Engineering, University of Maribor, SI-2000 Maribor, Slovenia.
E-mail: diego@det.uminho.pt

Laccase is a multicopper oxidase able to perform one-electron oxidation of several aromatic substrates.
The application of laccase on wood delignification, drug analysis, biosensor, wine clarification, bioremediation, etc., was proposed [1].
As every enzymatic system, laccase has some limitations due to the reaction conditions, mainly temperature and pH.
Deactivation of laccase at pH values over 6 and lower 3 are undesirable properties that must be improved. The addition of some compounds is an easy and conventional way to get the stabilization of laccase [2].
In this work laccase from *Trametes hirsuta* was studied in order to get its stabilization towards different pH values by addition of xylitol, a polyol used in food industry with optimal characteristics with respect to its prize and non-toxical properties.

[1] Mayer, A.M., Staples R.C. Laccase: new functions for an ols enzyme. Photochemistry 60 **2002** 551-565.
[2] E. V. Stepanova, O.V. Koroleva, V.P. Gvrilova, E.O. Landesman, A. Makower. Comparative stability assessment of laccases from basidiomycetes *Coriolus hirsutus* and *Coriolus zonatus* in the presence of effectors. Applied Biochemistry and Microbiology 39(5) **2003** 482-487