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Specific glycosidases in quiescent *S. cerevisiae* culture and their functions

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Several glycosidases such as alpha-glucosidase I and alpha-mannosidase are located in the endoplasmic reticulum of *Saccharomyces cerevisiae* and they cleave the terminal alpha1, 2-linked glucose alpha1, 2-mannose. Therefore, the effect of *S. cerevisiae* in quiescent state G₀ and active cells on the glycosylated hemocyanin *Rapana venosa* (RvH) and *Haliotis tuberculata* (HtH) is analyzed in comparison to the enzyme zymolysis. The carbohydrate structure of both the hemocyanins is known to have mainly mannose-type structures. The structural units of RvH1 and HtH1 are composed of various functional units with 45–60 kDa molecular masses measured by MALDI-TOF/TOF-MS ligand-bound by protease-sensitive peptides. However, we propose the model that the individual polypeptides of the various FUs are linked together in a network generated by oligosaccharides. Our hypothesis is confirmed by the generated fragments, with molecular masses of about 50 kDa, after incubation of HCS in *S. cerevisiae* growth medium. It is based on the assumption that yeasts produce glycosidases that break the oligosaccharides connecting the different functional units. After four days incubation of RvH and HtH in medium with *S. cerevisiae* in quiescent state G₀ and active cells, several different fractions were isolated which showed a negative orcinol/H₂SO₄ test. The results show a higher effect after treatment of both hemocyanins in *S. cerevisiae* active cells medium than in quiescent state G₀. However, the observed effect is lower than that after incubation of both HCS with zymolyase.

Biography

Dolashka P has wide experience in the isolation, purification, and characterization of biologically active compounds. She has more than 130 publications on these topics, three book chapters and six patents. She is the Editor-in-board of three journals and Representative of IUPAC. She is coordinating several international research projects, sponsored by NATO (Brussels), the European Commission, Germany (DFG and BMBF), CNR (Italy), FWO (Belgium), China, and Ukraine.

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