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The Influence of Altitude on Yeast Biodiversity and Characterization in Albanian Endemic Decorative Plants

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Microorganisms development is firmly linked with the changes and transformations of various substances in nature. Microorganisms participate in the breakdown of various organic substances and play an important role in the circulation of nitrogen and carbon in nature. Knowledge of the properties of these microorganisms, conditions of development, activity and biochemical processes they carry out, is essential for achieving the desired results in production. This paper is focused on a comparative study of the same yeast strains offered by same plants, grown in different altitude habitats. It was obvious that the microbial charges of the same plants grown in the habitats of different attitudes were almost the same, but with a different intensity of growth and different morphological characteristics of the same strains. A typical psychrophilic mold/yeast coexistence was observed, characteristic only of psychrophilic species. The most interesting case is the coexistence of Aureobazidium-Rhodotorula. An important conclusion of the study was that the development of Aureobazidium pullulans in extremely cold conditions is a contribution of the yeast species that accompanies it because it alone cannot adapt to extreme conditions.There were few cultures isolated, purified and passed for identification, which need to be further investigated for a possible relationship to the chemical composition of the plants.

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Effect of the environmental factors on biological pretreatment using microbial consortium

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Biological pretreatment is one of the crucial steps in the bioconversion of lignocellulosic biomass to value-added product. Filamentous fungi, cellulolytic and ligninolytic bacterial species were evaluated as promising degraders. In this study, the construction of an efficient microbial community composed of strains was aimed. Therefore, some environmental factors including medium culture, medium pH, liquid:solid ratio as well as cultivation method were optimized for the enhancement of process efficacy. The results showed that the basal medium promoted the production of reducing sugars, which was 2.35 and 5.27 times higher than those from the citrate medium under bacterial and fungal cultivation, respectively. Meanwhile higher hydrolytic enzyme activities were secreted by fungi cultivated in basal medium, whereas maximum laccase activity by bacterial co-culture in citrate buffer. Additionally, liquid:solid ratio played a key role in fungal degradation, and the ratio of 9:1 was accounted for the highest reducing sugar yield of 250 mg/gds. In suspended pretreatment, the sequenced cultivation (A. niger first and followed by bacterial co-culture) resulted outstanding degrading efficiency. These results significantly contribute to develop microbial consortium for pretreatment of lignocellulosic biomass.

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