

Hydrophobicity and Aggregation Properties of Yeasts Isolated From YoghurtSelin UYSAL, Yavuz BEYATLI, Zehranur YUKSEKDAGDepartment of Biology, Faculty of Science, Gazi University, Ankara, TURKEY
zehranur@gazi.edu.tr

Aim of the study: Yeasts present great potentials for the development of novel probiotics. Therefore, probiotic yeast has become a field of interest to scientists in recent years. Adhesion ability is regarded as an important property when probiotic microorganisms are selected. Microbial adhesion is determined by non specific and reversible interactions that involve hydrophobicity. Properties associated with the initial stage are hydrophobicity of the cell surface and aggregation. Bacterial aggregation is key factors for colonization of the digestive ecosystem and the ability of probiotic strains to exclude pathogens. In the present study, fifteen yeast strains were evaluated for aggregation and hydrophobicity properties.

Material and Methods: Microbial adhesions to solvents (p-xylene-nonpolar neutral solvent, chloroform-monopolar acidic solvent, and ethyl acetate-monopolar basic solvent) were measured by the method of Zarate et.al. (2002). Aggregation abilities were performed by the method of Rinkinen et.al. (2003) using the aggregation percentage. In coaggregation, test microorganisms were used *Lactobacillus acidophilus* ATCC 4356, *Escherichia coli* ATCC 25922, and *Candida albicans* ATCC 90028.

Results: The degree of hydrophobicity is expressed as the percentage of cells transferred from the aqueous phase to the non polar phase. Microbial adherence to hydrocarbons was observed to be species and strain-specific. The yeast strains showed strong hydrophobicity properties (62.50-99.58%). *Saccharomyces kefir* SKYP13A and *Cryptococcus humicola* SKYP3 had the highest adherence to chloroform, while the lowest was by *S. kefir* SSYS5 to ethyl acetate. *Saccharomyces kefir* SKYP9 had the highest percentage autoaggregation (86.71%) after 4 h. The results showed a wide distribution of the yeast strains over the range of co-aggregation ability from 21.26 to 80.46%, regarding the use of test microorganisms. The highest co-aggregation ability was detected for *S. cerevisiae* SSYS2 and *Escherichia coli* ATCC 25922 (80.46%).

Keywords: Yeast, probiotic, hydrophobicity, aggregation