

ISOLATION OF YEAST AND EVALUATION FOR NITROGEN FIXATION

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ABSTRACT

Nitrogen fixation is the reduction of atmospheric nitrogen gas to ammonia. Organisms that can fix nitrogen are essential for maintaining a supply of physiologically usable nitrogen on earth. Nitrogen in the atmosphere (N_2) is very inert, and it takes lot of energy to split the bonds in the nitrogen molecule so that can form other compounds, such as nitrites and nitrates. However, nitrogen is an essential component of biological molecules such as proteins and DNA. Soil microorganisms such as bacteria, fungi, actinomycetes and algae are involved in atmospheric nitrogen fixation. Those microorganisms can be used for production of bio fertilizes. Some bacteria are use as bio fertilizers for nitrogen fixation. But price of these bacterial fertilizers are high compared with chemical fertilizers used to prevent nitrogen deficiency of crops. Therefore farmers tend to use chemical fertilizers. Yeasts are highly available in many places such as in plants, flowers, fruits, tree exudates, tanning liquors, necrotic tissues of plants, mushrooms, animals (as pathogens), soil and aquatic environment. Isolation of yeast from those various places will be helped to get lot of yeast strains. It will help to find effective yeast strains for biological nitrogen fixation. 53 yeast isolates were isolated from various samples taken from many places of the country. Yeast extract peptone dextrose media was used for isolation of yeast strains. Isolated yeast strains were evaluated for atmospheric nitrogen fixation in nitrogen free liquid media in 30 days period. The nitrogen content was measured by using kjeldhal analysis. Colony morphology, cell morphology and budding behavior of yeast strains were studied for identification purposes. Among isolated yeast strains most of yeasts are superior in nitrogen fixation than baker's yeast. Soil yeasts have shown somewhat higher ability of nitrogen fixation.

Key words: Nitrogen fixation, Yeast Strain, Isolation, Evaluation