International Journal of ChemTech Research
CODEN(USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.10 No.6, pp 720-726,2017

Co-Culture: A Promising Method In Enzyme Production

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Abstract: Enzyme production has been increased during the past century as they have immense applications in various industries. Majority of the industrial enzymes are obtained from microorganisms, due to its rapid growth and easy cultivation using low-cost substrates. However, the yield is not satisfactory to meet industrial demand. Several methods are available to enhance enzyme production such as one factor at a time approach, and statistical approaches like response surface methodology by using of improved or mutant strains. Co-culture is another promising approach which involves the cultivation of two or more different microbes. Co-culture appears to be very beneficial because of the synergistic expression of metabolic pathways of all microorganisms involved. Thus, it provides an opportunity to increase the yield and enzyme activity . It is also a promising approach for various industrial products like antibiotics, bulk chemicals, food additives, alcohols and so on. In enzyme production, co-culture is found to be a superior method than monoculture because of the mutual expression of metabolic pathways in substrate utilization. In addition, it allows the expression of silent genes by all microorganisms involved in co-culture. This mini-review highlights the optimistic roles of co-culture in enzymes production.
Key words: Co-culture, enzymes, Fermentations, Microbial interactions, Product yield.

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