

The effect of de-oiled rice bran for single cell protein production using fungal cultures under solid state fermentation

Abstract

In the present work, de-oiled rice bran (DOB) was exploited for SCP production using three different fungi, namely, *Aspergillus oryzae* MTCC 1846, *Trichoderma viride* NRRL 1186 and *Aspergillus niger* MTCC 1842 under solid state fermentation. DOB was found to contain 9% protein, 39% cellulose, 28% hemicellulose and 24% lignin. All the three cultures have shown more specific growth rate when grown on glucose in comparison to maltose and cellulose. The specific growth rates on glucose were 0.203, 0.201 and 0.196 h⁻¹ and on maltose were 0.173, 0.171, 0.169 h⁻¹ for *A. oryzae* MTCC 1846, *T. viride* NRRL 1186 and *A. niger* MTCC 1842, respectively. All the three microorganisms showed lowest specific growth rate on cellulose 0.119, 0.117, 0.114 h⁻¹ for *A. oryzae* MTCC 1846, *T. viride* NRRL 1186 and *A. niger* MTCC 1842, respectively. The major constituent of dried fungi is crude protein, which contributes to 43% in *A. oryzae* MTCC 1846, 44% in *T. viride* NRRL 1186 and 39.2% in *A. niger* MTCC 1842 on dry basis. Among the three fungi *A. oryzae* MTCC 1846 shows minimum content of nucleic acids (5.3%) while *A. niger* MTCC 1842 and *T. viride* NRRL 1186 showed (6.1%) and (7.2%), respectively. © 2009 The Berkeley Electronic Press. All rights reserved.