Muhammad Asgher, J Food Process Technol 2013, 4:10
http://dx.doi.org/10.4172/2157-7110.S1.015

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference and Exhibition on
Food Technology, Bioprocess & Cell Culture
October 28-30, 2013 Kansas City Marriott Country Club Plaza, USA

Optimization of ligninolytic enzymes production through response surface methodology

Muhammad Asgher
University of Agriculture, Pakistan

There is an increasing demand for green technologies that can cope with the environmental waste management challenges. Agro-industrial residues are primarily composed of complex polysaccharides that support microbial growth for the production of industrially important enzymes like ligninolytic enzymes. *Schyzophyllum commune* and *Ganoderma lucidum* were used in single as well as mixed/co-culture to produce crude ligninolytic enzymes extracts using corn stover and banana stalk in solid state fermentation (SSF). In initial screening the ligninolytic enzymes extract from *S. commune* produced using corn stover as substrate showed higher activities of lignin peroxidase (1007.39 U/mL), manganese peroxidase (614.23 U/mL) and laccase (97.47 U/mL) as compared to *Ganoderma lucidum* and mixed culture. To improve the production of ligninolytic enzymes by *S. commune* in solid state fermentation (SSF), the physical factors like pH, temperature, moisture, inoculums size and incubation time were optimized by varying them simultaneously using Response surface methodology (RSM) under Central composite design (CCD). The optimum SSF conditions were (per 5g corn stover): pH 4.5; temperature, 35°C; inoculum size, 4 mL and moisture content, 60%. Under optimum conditions, the activities of lignin peroxidase (LiP), manganese peroxidase (MnP) and laccase were 1270.40, 715.08 and 130.80 IU/ml, respectively.

mabajwapk@yahoo.com