

## **O11 - EVALUATING THE POTENTIAL OF FOUR DIFFERENT AGRO-INDUSTRIAL RESIDUES AS NUTRIENT SOURCE FOR FUNGAL GROWTH**

*Teresa Conde, Silvia Martins, José A. Teixeira, Solange I. Mussatto*

Institute for Biotechnology and Bioengineering (IBB),  
Centre of Biological Engineering, University of Minho,  
Campus of Gualtar, 4710-057, Braga, Portugal.  
\*solange@deb.uminho.pt

The potential of four different agro-industrial residues, namely, spent coffee grounds, coffee silverskin, brewer's spent grains and corn cobs, to be used as nutrient sources for fungal growth under solid-state fermentation (SSF) conditions was evaluated. Extracts were produced by mixing 1 g of each agro-industrial residue (fine powder) with 20 ml of distilled water, and the mixture was autoclaved at 120 °C for 20 min. The extracts were characterized regarding the contents of reducing sugars, total phenolic compounds and protein. Specific solid culture mediums of agar-glucose-extract (15 g/L agar and 20 g/L glucose) were prepared and autoclaved at 112 °C for 15 min, and then, transferred to Petri dishes. Three different fungal strains including *Aspergillus japonicus*, *Penicillium brevicompactum* and *Trichoderma viride* were inoculated in the center of the Petri dishes and incubated at 28 °C for approximately 10 days. The radial growth rate of the strains was daily determined by measuring four perpendicular diameters. Potato dextrose agar (PDA) medium was used as control. The fungal strains were able to growth in all the agar-glucose-extract media. Subsequently, assays were carried out in agar-extract media, i.e., using the extracts as nutrient and carbon source, and it was also verified a significant growth of the microorganisms. Analytical determinations revealed that all the evaluated residues were rich in minerals, which probably favored the fungal growth. It was concluded that spent coffee grounds, coffee silverskin, brewer's spent grains and corn cobs have great potential for use as low cost nutrient and/or carbon source for fungi cultivation.