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**Biological pre-treatment of wheat bran using a promising consortium of fungal strains.**

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Lignocellulosic biomass is one of the most abundant renewable resources on earth. It provides an attractive feedstock for ethanol production due to its rich carbohydrate compounds (55-75% dry basis). Due to the complex structure, this biomass needs the pre-treatment and recently, the thermal/chemical methods are frequently used. However, these technologies usually need expensive corrosion resistant reactors, processing large volumes of the waste stream, extensive washing of treated solids, and detoxification of compounds inhibitory to ethanol-fermenting microorganisms. From both economic and environmental perspectives, fungal pre-treatment with lignin-degrading microorganisms, preliminary white rot fungi, has received attractive interest as an alternative to thermal/ chemical pre-treatment for cellulosic ethanol production. In this study, the effect of consortium formed by different genera of fungi (*Aspergillus*, *Penicillium* and *Trichoderma*) on the bio-pretreatment of wheat bran was investigated. The highest soluble carbohydrate content (216.2 mg/g) was released after 3 days of pre-treatment by the consortium of *T. viride* F.00795, *Aspergillus awamori* F.00720 and *Penicillium granulatum* F.00913. The optimal ratio of liquid to solid, pH and temperature as well as inoculum ratio were determined to be 7:1, pH 6.25, 45 °C and 33:33:33% in total 6.105 conidia of *A. awamori*, *P. granulatum* and *T. viride*, respectively, per gram dry substrate. The application of fungal multi-cultures resulted in about 56.5 g soluble carbohydrate from 100 g substrate after 6 days of bio-treatment which is very promising.