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INFLUENCE OF NUTRIENTS CARBON AND NITROGEN SUPPLEMENTATION ON BIODEGRADATION OF WHEAT STRAW BY *TRAMETES VERSICOLOR*

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ABSTRACT

Wheat straw is a rich source of carbohydrate (50-70%) in the form of cellulose and hemicellulose, associated with a lignin (20%) matrix in the form of the of lignocellulose, which hinders the availability of carbohydrates. In the present study *Trametes versicolor* was used to biodegrade the lignin of wheat straw to free the cellulose and hemicellulose in an efficient, economical and environment friendly manner by manipulating the nutrient composition of fermentation media. Maximum removal of lignin (36.29%) with minimum loss of organic matter was observed in glucose supplemented media. Glucose proved a better source of carbon than molasses. Ammonium-N decreased the lignin degradation. Nitrogen + glucose containing medium removed 20.96% lignin at the expense of 19.90% organic matter. Dry matter digestibility (DMD) of wheat straw was improved by 64.34%. The DMD of the fermented wheat straw was equivalent to good quality hay i.e. up to 70%.

Key words: Wheat straw, *Trametes versicolor*, lignin biodegradation, improvement in rumen digestibility.
