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Nutritional Evaluation of Fungal Treated Rice Straw

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Abstract

Microbial improvement of nutritive value for rice straw is not only aids in the prevention of Egyptian environmental pollution but also solve the problem of shortage in animal feeds ingredients. The current study was designed to

Trichoderma viride, *Trichoderma reesei*, *Pleurotus ostreatus*, *Aspergillus oryzae* and *Aspergillus fetidus*. This fermentation results in improving of nutritive value of rice straw by increasing its dry matter, protein, fat, ash and energy

which were very high for rice straw treated with *Trichoderma viride* and *Trichoderma reesei* followed by that treated by *Pleurotus ostreatus* then those treated by *Aspergillus oryzae* and *Aspergillus fetidus*.

: Rice straw, Solid state fermentation, Fungi, Biotechnology

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In Egypt the annual agriculture by-products estimated to be around 30 million tons of dry material. Approximately, two thirds of the crop residues are burned or wasted, and hence lead to environmental pollution and consequently health hazards. Burning of agricultural wastes specially rice straw form 42% of Egyptian environmental pollution. Utilization of such by-products cannot only be used in solving for problem of animal feed shortage but also as a method to control environmental pollution. To increase the nutritive value of rice straw, many e orts have been carried out. Several reports have been documented on the use of chemical, physical, mechanical and biological treatments. Biotechnological approaches as the use of suitable microorganism have been employed. is approach is believed to be more safe and environment friendly than using of chemicals. Recently, biological degradation of agricultural residues by solid state fermentation (SSF) using selected microorganisms should have the ability to produce su cient amount of appropriate enzymes that are able to degrade the cellulose and hemicelluloses in the substrate. By this method, lignin is preferentially decreased. Fungal organisms have the ability to utilize starch of the substrate to produce single cell protein. However, the reduction of lignin and lingo-cellulosic complex depend on the strain of fungi and the cultural conditions. Among di erent fungal strains, treatments with *Asprigillus* spp. increase crude protein content of di erent substrates such as rice bran, sugar

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