Título: CHARACTERIZATION OF NITROGENATED COMPOUND IN SOLID STATE FERMENTED BRAN

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Resumo:

The production of fungal biomass (single cell protein) can be interesting to increase the protein content of the substrate or to add value to agroindustrial waste. Solid-state fermentation (SSF) can be used to obtain microbial biomass , because it is a technique capable of proposing alternative ways for waste generated by using them as a source of nutrients for growth of microorganisms. The filamentous fungus *Aspergillus* is among the most promising in biomass production, as well as raise the protein content, produce proteins with high digestibility. The objective was to characterize the nitrogen compounds produced in *Aspergillus awamori* fungal biomass, with the substrate cocoa meal, to identify the effect of fermentation conditions on these nutrients. The fermentations were carried out in lab-scale, tray-type bioreactors containing 15g of waste (60% w/w). The medium was inoculated with 10^7 sopres/gram of dry solid and incubated in a chamber with conditions set to 30ºC and 90% water saturation, with a maximum fermentation up to 96 hours. The total nitrogen content of the samples was determined by the Kjeldahl method (AOAC), and converted to percentage of protein on a dry basis, using the conversion factor of 6.25. The amino acid profile (aa) was determined after acid hydrolysis of samples with HCl 6N, 150°C for 90 minutes, followed by liquid chromatography in reverse phase HPLC system. The unfermented cocoa meal had a protein content of 15%. The protein content in the fermented residue of *A. awamori* was 21% after 48h of fermentation. The increase in the total amino acid content occurred after 48h of process (25%), stabilizing or decreasing after 72h. The lysine, an essential amino acid, showed an increase of 30%, after 48h of fermentation, in relation to the content present in the non-fermented waste. The tendency to stabilize or even reduce the amino acid content can be derived from the fungus sporulation process or else the use of amino acids for the synthesis of non-protein compounds, which are characteristic of the biological cycle of the fungus. The results can contribute to the agricultural industry, offering alternatives to add value to these products, as a component for animal feed.

Keywords: fermentation, waste; fungal biomass.