

**PHYSIOCHEMICAL PROPERTIES AND NUTRIENT
CONTENT OF FERMENTED SWEET POTATO
(*IPOMOEA BATATAS L.*)**

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ABSTRACT

Sweet potato pulp was fermented using pure strains of four monoculture fungi: *Aspergillus niger*, *Rhizopus stolonifer*, *Neurospora* and *Saccharomyces cerevisiae* by solid substrate fermentation method. Results of proximate analysis showed significant ($P \leq 0.05$) increased protein (from $2.34 \pm 0.07\%$ in the control to values ranging from 11.46 ± 0.10 to $12.62 \pm 0.09\%$ in the fermented samples) and lipid contents (from $2.89 \pm 0.04\%$ in the control to 3.77 ± 0.11 and 5.57 ± 0.14 in the fermented samples). Significant decreases were recorded in ash, crude fibre and carbohydrate contents. Reducing, non-reducing and total sugar, starch and amylopectin contents were significantly reduced, while amylase content increased as a result of fermentation. Mineral analysis showed increased Zn, Fe and Na contents while Mg, Ca, P and K were reduced. The pH of the samples reduced as fermentation progressed except in *Saccharomyces cerevisiae*-fermented samples. Highly significant negative correlation was obtained between fermentation time and pH of samples fermented with *Aspergillus niger*, *Rhizopus stolonifer* and *Neurospora sitophila* while *Saccharomyces cerevisiae*-fermented samples was highly significantly and positively correlated with fermentation time. Bulk density was reduced as a result of fermentation, ranging from 3.00 to 13.43%. Overall, *Aspergillus niger* appeared to be the most nutritionally-enriching of the four fungi used in the study.

Keywords: Monoculture fungi, nutrient composition, physicochemical properties, solid substrate fermentation, sweet potato.