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Amylase Activities of Mould Isolated from Spoilt Ogi and Eko: Two (2) Fermented Maize Products

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Abstract : "Ogi" is a fermented cereal gruel prepared from maize (Zea mays), millet (Pennisetum typhoideum) or guinea corn (Sorghum bicolour). It could be boiled to give a thicker consistency wrapped in leaf allowed to cool and set to a gel known as "eko". The objective of this study is to determine the amylase activities of mould associated with the spoilage of Ogi and eko. Moulds were isolated from spoilt Ogi and eko samples using standard microbiological procedures. The isolate was then screened for amylase production using starch agar medium. Positive isolates were used for amylase production by solid state fermentation (SFF) using rice bran as the medium. An alpha-amylase and glucoamylase activity of the crude enzyme was determined using the DNS method. The mean mold Population ranged from 1.15 X 105cfu/g for raw Ogi to 6.25 X 105cfu/g for Eko (wrapped in Leaves). Twenty-seven (27) moulds isolated from the sample include A. niger, A. flavus, A. fumigatus, Rhizopus species and Penicillium species. Aspergillus flavus had the highest percentage (51.9%) of incidence while Penicillium species had the least (3.7%). Out of the 27 isolates screened, 19 were found to be amylase positive by showing a clear zone around their colony after flooding with iodine solution. Diameter of clear zone ranged from 3.00mm (Aspergillus niger, C4) to 22.00mm (Aspergillus flavus, A1). Aspergillus niger isolated from spoilt Eko wrapped in leaf has the highest percentage alpha-amylase activity (30.8%) and Aspergillus flavus isolated from spoilt raw ogi has the lowest activity (11.4%). Aspergillus niger isolated from spoilt Eko wrapped in nylon produces the highest glucoamylase activity (240U/ml) while penicillium specie isolated from spoilt cooked ogi has the lowest activity (100U/ml). This study shows that moulds associated with spoilage of ogi and eko can produce amylase.

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