

Use of Extruded Hard-to-cook Bean Flour in Substitution of Peptone in Microbiological Culture Media

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Beans stored for long periods at typical Brazilian storage temperature (30° a 40 °C) and humidity (>75%) suffer of a phenomenon known as hard-to-cook defect which results in losses of quality such as increase in cooking time, and deterioration of texture and flavor. Despite of the nutritional value of hard-to-cook beans remains the same, its economical value are significantly decreased. An alternative use for hard-to-cook beans is submitting its flour to extrusion and posterior use as a source of nutrients for biotechnological processes. In this work the extruded flour was evaluated as substitute of peptone in solid culture medium for growth of bacteria (*Bacillus cereus*, *Eschechiria coli* *Klebsiella* sp.) and fungus (*Saccharomyces cerevisiae* and *Arpergillus niger*). The peptone was substituted by extruded hard-to-cook bean flour in Nutritive (*Klebsiella* sp), Sabouraud (*Arpergillus niger*), LB (*Eschechiria coli* and *Bacillus cereus*) and YPD (*Saccharomyces cerevisiae*) media. The microorganisms were pre-inoculated in specific liquid medium, incubated at 37°C for 24h and transferred to respective solid-medium. Growth was performed in Petri dishes. The *Arpergillus niger* presented an increase of growth halo and decrease of cellular mass. The *Saccharomyces cerevisiae* growth was faster in medium containing extruded hard-to-cook bean flour. *Bacillus cereus*, *Eschechiria coli* and *Klebsiella* sp. presented similar growth in both control and hard-to-cook bean flour medium. These results showed a satisfactory replacement of peptone by extruded hard-to-cook bean flour, which contributes to decrease operational costs in microbiological media manufacturing.

Keywords: hard-to-cook bean; extrusion; microorganisms.