



Effects of culture conditions on acetic acid production by bacteria isolated from Ivoirian fermenting cocoa (*Theobroma cacao* L.) beans

Souleymane SOUMAHORO, *Bernadette G. GOUALIE, Jacques N. ADOM, Honoré G. OUATTARA, Gisèle KOUA, Ginette G. DOUE, Sébastien L. NIAMKE

Laboratoire de Biotechnologies, Filière Biochimie-Microbiologie, Unité de Formation et de Recherche en Biosciences, Université Félix Houphouët-Boigny, 22 BP 582. Abidjan, Côte d'Ivoire

* Corresponding author: bettygoualie@yahoo.fr

Original submitted in on 2nd October 2015. Published online at www.m.elewa.org on 30th November 2015
<http://dx.doi.org/10.4314/jab.v95i1.8>

ABSTRACT

Objectives: This study investigates the acidification capacity under various culture conditions of high acetic acid producer AAB strains previously isolated from Ivoirian cocoa beans fermentation.

Methodology and Results: Effect of culture conditions was studied in agar medium and acid production was monitored by measuring the clear halo diameter during incubation. All tested strains showed acetic acid production at 30, 35 and 40 °C. Moreover, at initial concentration 0.1 - 0.4 %, lactic and citric acids stimulated acidification capacity of these strains with increase rate ranged from 50 to 100 % while acetic acid reduced this capacity. In addition, maximum acetic acid production capacity was obtained for strains 123 D; 56 AB and 49 D at 8 % ethanol initial concentration.

Conclusions and application of findings: This study shows that all tested strains are able to produce acetic acid under certain culture conditions similar to cocoa fermentation stress. However, cocoa fermentation assay is needed to better estimate the performance of selected strains.

Keywords: Acetic acid bacteria, acetic acid production, Cocoa fermentation, culture conditions