

Penerapan Teknologi *High Pulsed Electric Field* untuk Menurunkan Kadar Asam Sianida pada Rebung

(Application of High Pulsed Electric Field Technology for Reducing Hydrogen Cyanide Content in Bamboo Shoots)

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ABSTRACT

Bamboo shoots are a food ingredient with high nutritional content that contains the antinutritional compound hydrogen cyanide (HCN), so they require processing to reduce its levels before consumption. Conventional methods such as boiling and soaking are effective in reducing HCN, but they have the potential to decrease nutritional content and require relatively longer processing times. This study aims to analyze the HCN content in bamboo shoots before and after HPEF treatment, evaluate the effect of sample thickness variations and HPEF treatment time on the reduction of HCN content, and determine the impact of HPEF treatment on crude fiber and moisture content. This study uses a two-factor factorial Completely Randomized Design (CRD) experimental method, namely sample thickness (0.5; 0.7; and 1 cm) and HPEF treatment time (4, 6, and 8 minutes). Data analysis uses two-way ANOVA. The research results show that the HPEF treatment is capable of reducing the HCN content in bamboo shoots from 9.68 mg/100g to 2.71 - 5.21 mg/100g. The best treatment combination was obtained with a sample thickness of 0.5 cm and an HPEF time of 8 minutes, resulting in the lowest HCN content of 2.71 mg/100g. The factors of thickness, treatment time, and their interaction significantly affected the HCN content ($p < 0.05$). The HPEF treatment also had a significant effect on the crude fiber content, but did not significantly affect the water content. During the HPEF process, the sample temperature only increased by about 0.2°C, indicating that the treatment was non-thermal. Thus, the HPEF technology is effective in reducing the HCN content in bamboo shoots without causing significant changes in moisture content.

Keywords: bamboo shoots, cyanide acid, electroporation, HPEF, non-thermal