

**Pengaruh Waktu Pra-Perlakuan *Pulsed Electric Field* terhadap Ekstraksi  
Pektin Kulit Pisang Ambon Berbasis Microwave**

*The Effect of Pulsed Electric Field Pretreatment Time on Microwave-Based  
Extraction of Pectin from Ambon Banana Peel*

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***ABSTRACT***

*Banana is one of the main commodities in Indonesia with a high production level, thus having the potential to generate large amounts of banana peel waste. This waste can be utilized as a source of value-added pectin widely used in the food and pharmaceutical industries. This study aimed to determine the effect of variations in Pulsed Electric Field (PEF) pre-treatment time on the yield and chemical characteristics of pectin extracted from Ambon banana peel using the microwave-assisted extraction (MAE) method. The treatments applied were variations in PEF pre-treatment time, namely P0 (0 minutes), P1 (1 minute), P2 (2 minutes), P3 (3 minutes), P4 (4 minutes), and P5 (5 minutes). The results showed that PEF pre-treatment had a significant effect ( $P < 0.05$ ) on pectin yield. The pectin yields obtained for P0, P1, P2, P3, P4, and P5 were 10.35%; 11.45%; 10.92%; 15.09%; 14.12%; and 12.43%, respectively, with the highest value observed in P3 and the lowest in P0. However, further increases in pre-treatment time did not significantly increase the yield and even tended to decrease due to pectin degradation. Meanwhile, PEF pre-treatment did not significantly affect the chemical characteristics of pectin, including equivalent weight, methoxyl content, galacturonic acid content, and degree of esterification. The pectin produced was classified as low-methoxyl pectin with methoxyl content ranging from 2.88–3.04% and a degree of esterification of less than 50%.*

**Key words:** *Ambon banana peel, pectin, Pulsed Electric Field (PEF), microwave-assisted extraction (MAE), yield.*