

Fika Anjani. NPM 210331100018. Pengaruh *Pulsed Electric Field* (PEF) *Pretreatment* Terhadap Kualitas Ekstrak Batang Daun Pakis Kinca (*Nephrolepis cordifolia* (L.) C. Presl). Di bawah Bimbingan **Dr. Askur Rahman, S.TP., M.P.** dan **Mojiono, S.TP., M.Si.**

ABSTRAK

Pakis Kinca merupakan tanaman herbal yang mengandung beberapa komponen, seperti tannin, saponin, alkaloid, flavonoid, total fenol, serta memiliki nilai IC_{50} . Penelitian ini bertujuan untuk mengetahui pengaruh variasi tegangan pada *Pulsed Electric Field* (PEF) *pretreatment* terhadap rendemen, total flavonoid, dan aktivitas antioksidan dari ekstrak batang daun pakis kinca (*Nephrolepis cordifolia* (L.) C. Presl). Metode ekstraksi yang digunakan adalah maserasi, dengan perlakuan tegangan PEF 0 V, 4000 V, 6000 V, dan 8000 V selama 480 detik. Parameter yang diamati meliputi rendemen, total flavonoid (TFC), aktivitas antioksidan (IC_{50}), serta analisis mikroskop elektron menggunakan *Scanning Electron Microscopy* (SEM). Hasil penelitian menunjukkan bahwa variasi tegangan PEF tidak berpengaruh nyata terhadap rendemen dan aktivitas antioksidan, namun berpengaruh nyata terhadap kandungan total flavonoid. Nilai rendemen tertinggi diperoleh pada perlakuan kontrol sebesar 8,89%, kadar total flavonoid tertinggi sebesar 39,87 mg QE/g ekstrak, dan nilai IC_{50} terendah (aktivitas antioksidan tertinggi) sebesar 146,62 ppm pada perlakuan 8000 V. Analisis SEM menunjukkan adanya perubahan morfologi dinding sel akibat PEF, namun bersifat reversible. Dengan demikian, *PEF pretreatment* berpotensi meningkatkan kandungan flavonoid tanpa merusak struktur sel secara permanen.

Kata Kunci : Antioksidan, Pakis kinca, *Pulsed Electric Field*, Total Flavonoid, SEM.

Fika Anjani. NPM 210331100018. The Effect of Pulsed Electric Field (PEF) Pretreatment on the Quality of Kinca Fern Stem (*Nephrolepis cordifolia* (L) C. Presl) Extract. Under the Guidance of **Dr. Askur Rahman, S.TP., M.P.** and **Mojiono, S.TP., M.Si.**

ABSTRACT

Cinca Fern is a herbal plant that contains several components, such as tannins, saponins, alkaloids, flavonoids, total phenols, and has an IC₅₀ value. This study aims to determine the effect of voltage variation in Pulsed Electric Field (PEF) pretreatment on the yield, total flavonoid content, and antioxidant activity of extract from Nephrolepis cordifolia (L.) C. Presl (pakis kinca) stem-leaves. The extraction method used was maceration, with PEF voltage treatments of 0 V, 4000 V, 6000 V, and 8000 V for 480 seconds. The parameters observed included yield, Total Flavonoid Content (TFC), antioxidant activity (IC₅₀), and electron microscope analysis using Scanning Electron Microscopy (SEM). The results showed that PEF voltage variation had no significant effect on extract yield and antioxidant activity, but significantly affected the total flavonoid content. The highest yield was obtained in the control treatment (8.89%), the highest TFC was 39.87 mg QE/g extract, and the lowest IC₅₀ value (indicating the highest antioxidant activity) was 146.62 ppm at 8000 V. SEM analysis revealed morphological changes in the cell wall due to PEF ptreatment, but these changes were reversible. Thus, PEF pretreatment has potential to enhance flavonoid content without permanently damaging cell structure.

Keyword : Antioxidant, *Nephrolepis cordifolia*, Pulsed Electric Field, Total Flavonoid Content, SEM.