

Research Article

Anti-Inflammatory Effects of Ripe Areca Nut Ethyl Acetate Fraction in Wistar Rats with Knee Joints Osteoarthritis

Efek Anti-Inflamasi Fraksi Etil Asetat Biji Pinang terhadap Tikus Wistar Model Osteoarthritis

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ABSTRACT

Osteoarthritis (OA) is the most common form of arthritis. Meloxicam are one of NSAIDs commonly used that have many side effects. Areca nut (*Areca Catechu L*), which contains flavonoids, can provide anti-inflammatory effects. This study aimed to determine the potential anti-inflammatory effect of ethyl acetate fraction from ripe areca nut in OA rat model. Twenty five of adults, male *Rattus norvegicus* strain Wistar were induced to OA with Monosodium Iodoacetate (MIA), then divided into five groups that each group were given ethyl acetate fraction of ripe areca nut doses of 15mg/kgBW, 30mg/kgBW, and 60mg/kgBW, meloxicam 1.35mg/kgBW and aquadest as negative control for 14 days. Diameter of the knee joint is measured by digital metric kaliper to assess joint edema. The Histopathological examination with Haematoxyllin-Eosin stain to assess degree of inflammation on synovial. Among the areca groups, dose 30mg/kgBW had knee joint diameter reduced better and lower synovitis score. In conclusion, ethyl acetate fraction of the ripe areca nut group has anti inflammation effect in OA model but not dose-dependent.

Keywords: Areca nut, ethyl acetate fraction, histopathology, knee joints, osteoarthritis

ABSTRAK

Osteoarthritis (OA) adalah bentuk artritis yang paling umum. Meloxicam adalah salah satu *Non-Steroidal Anti-Inflammatory Drugs* (NSAID) yang umum digunakan yang memiliki banyak efek samping. Pinang kuning (*Areca Catechu L*) yang mengandung flavonoid dapat memberikan efek anti inflamasi. Penelitian ini bertujuan untuk mengetahui potensi efek anti-inflamasi fraksi etil asetat biji pinang matang pada model tikus OA. Dua puluh lima tikus dewasa, *Rattus Novergicus Strain Wistar* diinduksi OA dengan *Monosodium Iodoacetate* (MIA), kemudian dibagi menjadi lima kelompok yang masing-masing kelompok diberi fraksi etil asetat pinang kuning dosis 15mg/kgBB, 30mg/kgBB, dan 60mg/kgBB, meloxicam 1,35mg/kgBB dan aquadest sebagai kontrol negatif selama 14 hari. Diameter sendi lutut diukur dengan kaliper metrik digital untuk menilai edema sendi. Pemeriksaan histopatologi dengan pewarnaan Haematoxyllin-Eosin untuk menilai derajat inflamasi pada sinovial. Di antara kelompok pinang, dosis 30mg/kgBB memiliki pengurangan diameter sendi lutut yang paling baik dan skor sinovitis yang paling rendah. Kesimpulannya, fraksi etil asetat kelompok pinang kuning memiliki efek anti inflamasi pada model OA tetapi tidak tergantung dosis.

Kata Kunci: Biji pinang kuning, fraksi etil asetat, histopatologi, osteoarthritis, sendi lutut

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