

## Uji aktivitas penghambatan HMG CoA reduktase dan penetapan kadar resveratrol dari ekstrak-ekstrak biji melinjo (*Gnetum gnemon* L.) = HMG CoA inhibitory activity and resveratrol assay quantification of melinjo (*Gnetum gnemon* L.) seed extracts

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### Abstrak

Resveratrol diketahui memiliki banyak aktivitas biologis sebagai anti sindrom metabolik. Resveratrol dan turunannya dilaporkan banyak ditemukan pada bagian-bagian tanaman melinjo, terutama biji. Penelitian bertujuan untuk menganalisis aktivitas penghambatan aktivitas HMG CoA reduktase dan kadar resveratrol dari biji melinjo (*Gnetum gnemon* L.). Simplisia biji melinjo diekstraksi secara refluks menggunakan lima pelarut bertingkat berbeda kepolaran yaitu n-heksana, diklorometana, etil asetat, metanol, dan air. Tiap ekstrak ditetapkan kadar resveratrolnya dan diuji aktivitas penghambatannya terhadap HMG CoA reduktase.

Hasil analisis menunjukkan ekstrak etil asetat, diklorometana, dan metanol berturut-turut memiliki kandungan resveratrol dengan kadar sebesar 8190, 3184, 686 mg/kg simplisia kering. Ekstrak diklorometana, etil asetat, dan metanol memberikan persen penghambatan terhadap aktivitas HMG CoA reduktase 64,78%, 41,84%, 25,63%. Ekstrak diklorometana diuji IC<sub>50</sub>-nya didapatkan nilai sebesar 0,4037 &#956;g/mL dibandingkan IC<sub>50</sub> pravastatin 0,0373 &#956;g/mL.

Hasil analisis ekstrak diklorometana menggunakan UPLC-MS memberikan data senyawa spesifik yaitu resveratrol, gnemonosida B, gnetin C, epsilon-viniferin dan gnetifolin K. Berdasarkan hasil ini, ekstrak diklorometana potensi terhadap penghambatan HMG CoA reduktase sehingga ke depannya dapat dikembangkan sebagai agen inhibitor HMG CoA reduktase.

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Resveratrol has known as anti-metabolic syndrome agent. Resveratrol and its derivate successfully isolated from melinjo (*Gnetum gnemon* L.). Melinjo seed extract has been reported with many biological activities including antioxidant, antidiabetic, anticancer, antiinflammatory effect, antibacterial, and lipase-amylase inhibition. The research aimed to analyze HMG CoA reductase inhibitory activity and resveratrol assay quantification from melinjo seed extracts. Dried melinjo seeds were successively extracted by reflux method using five solvents with gradient polarity. Each of extracts was tested using HMG CoA Reductase Assay Kit Sigma Aldrich ©, to analyzed the inhibition activity.

Ethyl acetate extract showed their highest resveratrol assay in amount of 8190, 3184, 686 mg/kg dried seed. On the other hand, dichloromethane extract gave result as the highest inhibitory activity against HMG CoA Reductase with IC<sub>50</sub> value is 0.4037 &#956;g/mL. Further, dichloromethane extract subjected to UPLC-MS to define the exact constituent which are responsible for its inhibition.

Results showed that resveratrol, gnetin C, epsilon-viniferin and gnetifolin K, gnemonoside A/B appeared in dichloromethane extract. In conclusion, dichloromethane extract of *Gnetum gnemon* L. seed might suggest

its role in inhibiting HMG CoA reductase activity.