

EFEKTIVITAS FORMULA LIPOSOM BUAH PARIJOTO (*Medinilla speciosa*) TERHADAP EKSPRESI miR-122 DAN miR-155 SECARA *IN VIVO*

Annisa Friska Rahmawati
Program Studi Farmasi

ABSTRAK

Latar Belakang: Benzo[a]pyrene dapat dimetabolisme menghasilkan *reactive oxygen species* (ROS) yang merusak hati. Akumulasi ROS menyebabkan peningkatan miR-122 dan miR-155. Parijoto memiliki aktivitas antioksidan dan hepatoprotektor karena mengandung flavonoid, saponin, dan tanin. Fraksi etil asetat parijoto dienkapsulasi menjadi liposom untuk meningkatkan bioavailabilitas.

Tujuan: Mengetahui efek formula liposom buah parijoto terhadap ekspresi miR-122 dan miR-155 pada hepar tikus terinduksi benzo[a]pyrene secara *in vivo*.

Metode: Tahapan penelitian meliputi ekstraksi buah parijoto, purifikasi ekstrak, formulasi liposom, evaluasi sediaan, induksi benzo[a]pyrene pada tikus dan pemberian liposom dosis 25 mg/kgBB dan 75 mg/kgBB selama 4 minggu, dan analisis ekspresi miR-122 dan miR-155 dengan RT-qPCR.

Hasil dan Kesimpulan: *Fold change* miR-122 kontrol negatif dan perlakuan liposom parijoto dosis 25 mg/kgBB meningkat, sedangkan kontrol positif dan liposom, dan perlakuan dosis 75 mg/kgBB menurun. *Fold change* miR-155 kontrol negatif meningkat, sedangkan kontrol positif, kontrol liposom, dan perlakuan liposom parijoto dosis 25 dan 75 mg/kgBB menurun. Liposom parijoto dosis 75 mg/kgBB memberikan efek terbesar menurunkan ekspresi miR-122 dengan *fold change* 865,07. Liposom parijoto dosis 25 mg/kgBB memberikan efek terbesar menurunkan ekspresi miR-155 dengan *fold change* 162,77. Liposom parijoto bekerja lebih baik menurunkan ekspresi miR-155 karena miR-155 sedikit di hati dibandingkan miR-122 sehingga dosis rendah senyawa aktif dapat memberikan efek.

Kata kunci: ROS, miR-122, miR-155, Liposom, Parijoto

THE EFFECTIVENESS OF LIPOSOMAL FORMULA OF PARIJOTO FRUIT (*Medinilla speciosa*) ON THE EXPRESSION OF miR-122 AND miR-155 IN VIVO

Annisa Friska Rahmawati
Pharmacy Program

ABSTRACT

Background: Benzo[a]pyrene can be metabolized to produce reactive oxygen species (ROS) that damage the liver. ROS accumulation increase miR-122 and miR-155. Parijoto has antioxidant and hepatoprotector activities because it contains flavonoids, saponins, and tannins. The ethyl acetate fraction of parijoto was encapsulated into liposomes to increase bioavailability and efficacy.

Purpose: This study aims to determine the effectiveness of parijoto fruit liposome formula on the expression of miR-122 and miR-155 in the liver of rats induced by benzo[a]pyrene in vivo.

Method: Research methods include extraction of parijoto fruit, purification of the extract, formulation of liposomes, evaluation of liposomes, induction of benzo[a]pyrene in rats i.p. for 4 weeks, administration liposomes at doses 25 mg/kgBW and 75 mg/kgBW, and analysis of miR-122 and miR-155 expression by RT-qPCR.

Result and Conclusion: The fold change value of miR-122 negative control and parijoto liposome treatment at dose of 25 mg/kgBB increased, while the positive control, liposome control, and parijoto liposome treatment at dose of 75 mg/kgBW decreased. The fold change value of miR-155 negative control increased, while the positive control, liposome control, and parijoto liposome treatment doses of 25 and 75 mg/kgBW decreased. Parijoto liposome dose of 75 mg/kgBW gave the greatest effect in reducing miR-122 expression with fold change value 865.07. Parijoto liposome dose of 25 mg/kgBW gave the greatest effect in reducing miR-155 expression with fold change value 162.77. The liposome formula works better at reducing miR-155 expression because miR-155 is present in smaller amounts in the liver than miR-122 so that low doses of the active compound can have an effect.

Keywords: ROS, miR-122, miR-155, Liposome, Parijoto