INTISARI

Latar Belakang: *Pluchea indica* (L.) Less. dan *Sauropus androgynus* (L.) Merr. adalah tanaman medisinal yang secara empiris digunakan sebagai galaktogogue herbal untuk menginduksi produksi air susu ibu (ASI), namun mekanisme aksinya di level molekuler dalam bentuk campuran ekstrak belum dijelaskan.

Tujuan: Mengkaji aktivitas campuran ekstrak daun *P. indica* (EPI) dan ekstrak daun *S. androgynus* (ESA) terhadap ekspresi gen prolaktin (PRL), reseptor prolaktin (PRLR), oksitosin (OXT), dan reseptor oksitosin (OXTR) pada kelenjar hipofisis serta kelenjar mammae tikus Wistar menyusui.

Metode: Ekstrak dibuat secara maserasi dalam pelarut etanol 70%, kemudian EPI dan ESA dihomogenkan dengan agen pensuspensi CMC 0,5%. Sebanyak 24 ekor tikus Wistar menyusui dibagi menjadi enam kelompok (n=4). Kelompok I: CMC 0,5% 1 mL/200 gBB sebagai kontrol, kelompok II: EPI 500 mg/kgBB, kelompok III: ESA 125 mg/kgBB, dan kelompok IV–VI diberikan campuran EPI dan ESA dosis bertingkat 125 + 31,25 mg/kgBB (EPI-ESA 1), 250 + 62,5 mg/kgBB (EPI-ESA 2), serta 500 + 125 mg/kgBB (EPI-ESA 3). Perlakuan diberikan satu kali sehari, per oral, mulai hari kedua hingga hari kelima belas pascaparturisi. Di hari keenam belas hewan coba dikorbankan untuk diambil jaringannya dan ekspresi gen diukur menggunakan instrumen *reverse transcription quantitative real-time polymerase chain reaction* (RT-qPCR).

Hasil Penelitian: Hasil pengujian di kelenjar hipofisis dan kelenjar mammae menunjukkan bahwa EPI-ESA 2 secara signifikan mampu meningkatkan ekspresi gen PRL dan OXT dibandingkan kelompok kontrol (p<0,05), sedangkan gen PRLR dan OXTR mengalami peningkatan ekspresi paling optimal terhadap kelompok kontrol setelah perlakuan EPI-ESA 3 (p<0,05). Keseimbangan induksi ekspresi seluruh gen target tercapai saat subyek menerima EPI-ESA 2 dosis 250 + 62,5 mg/kgBB.

Kesimpulan: Campuran EPI-ESA memiliki potensi untuk meningkatkan ekspresi gen PRL, PRLR, OXT, dan OXTR pada tikus Wistar menyusui. Penelitian lanjutan diperlukan untuk mempelajari profil toksisitas dan mengevaluasi mutu kombinasi ekstrak.

Kata Kunci: *Pluchea indica*, *Sauropus androgynus*, gen prolaktin, gen reseptor prolaktin, gen oksitosin, gen reseptor oksitosin

ABSTRACT

Background: *Pluchea indica* (L.) Less. and *Sauropus androgynus* (L.) Merr. are medicinal plants empirically used as herbal galactogogue to induce breast milk production, but their mechanism of action at the molecular level in form of mixed extract has not been elucidated.

Objective: To investigate the mixture activity of *P. indica* (EPI) and *S. androgynus* (ESA) leaves extract on prolactin (PRL), prolactin receptor (PRLR), oxytocin (OXT), and oxytocin receptor (OXTR) gene expression in pituitary and mammary glands of lactating Wistar rats.

Methods: Extract was prepared by maceration in 70% ethanol solvent, then EPI and ESA were homogenized with CMC 0,5%. Twenty-four lactating Wistar rats were divided into six groups (n = 4). Group I: CMC 0,5% 1 mL/200 gBW as control, group II: EPI 500 mg/kgBW, group III: ESA 125 mg/kgBW, and groups IV–VI were given a mixture of EPI and ESA respectively 125 + 31,25 mg/kgBW (EPI-ESA 1), 250 + 62,5 mg/kgBW (EPI-ESA 2), and 500 + 125 mg/kgBW (EPI-ESA 3). The treatment was given orally, once a day, from second day until fifteenth day after parturition. On the sixteenth day, experimental animals were sacrificed for tissue sampling and gene expression was measured using a reverse transcription quantitative real-time polymerase chain reaction (RT-qPCR) instrument.

Results: Test results in pituitary and mammary glands showed that EPI-ESA 2 significantly increased PRL and OXT gene expression compared to control group (p<0,05), while PRLR and OXTR gene expression experienced the most optimal increase than control group after EPI-ESA 3 treatment (p<0,05). The balance induction of all target genes was achieved when subjects received EPI-ESA 2 at doses of 250 + 62,5 mg/kgBW.

Conclusion: The mixture of EPI-ESA can potentially increase gene expression of PRL, PRLR, OXT, and OXTR in lactating Wistar rats. Further research is needed to study the toxicity profile and evaluate the quality of combined extract.

Keywords: *Pluchea indica*, *Sauropus androgynus*, prolactin gene, prolactin receptor gene, oxytocin gene, oxytocin receptor gene