

## INTISARI

**Latar Belakang :** Aktivitas reproduksi dan pelepasan hormon steroid diregulasi oleh HPG *axis* yang meliputi hipotalamus, hipofisis dan gonad. Hipofisis dapat mensekresikan FSH dan LH yang berperan dalam regulasi reseptor FSH dan LH (FSHR dan LHR) melalui umpan balik positif dan negatif estrogen. Kurkumin memiliki sifat fitoestrogen yang dapat menurunkan kadar FSH dan LH melalui umpan balik negatif hipotalamus-hipofisis sehingga dapat menghambat ekspresi mRNA reseptor FSH dan LH.

**Tujuan :** Melihat pengaruh pemberian kurkumin terhadap ekspresi mRNA reseptor FSH dan LH (FSHR dan LHR) ovarium *Rattus norvegicus* strain Wistar pada fase folikuler

**Metode :** Penelitian menggunakan ovarium beku tikus (*R. norvegicus*) betina strain Wistar dengan jumlah sampel 24 ekor. Terbagi menjadi 1 kelompok kontrol dan 3 kelompok perlakuan dengan dosis kurkumin 100 mg/kgBB, 150 mg/kgBB, dan 200 mg/kgBB. Masing masing kelompok terdiri dari 6 ekor dengan rancangan penelitian *post-test control group design*. Ekspresi mRNA FSHR dan LHR ovarium diuji menggunakan metode qRT-PCR. Analisis statistik dilakukan menggunakan SPSS *one way Anova*.

**Hasil :** Hasil yang diperoleh menunjukkan bahwa tingkat ekspresi mRNA FSHR dan LHR tidak berbeda bermakna secara statistik dengan tingkat signifikansi masing masing 0,98 dan 0,85 ( $p > 0,05$ ). Ekspresi mRNA FSHR lebih rendah dibandingkan dengan kontrol ( $1,06 \pm 0,35$ ) pada perlakuan dosis 100 mg/kgBB, sedangkan pada dosis 150 mg/kgBB dan 200 mg/kgBB memiliki nilai rata-rata ekspresi lebih tinggi daripada kontrol. Selain itu, mRNA LHR pada tiga dosis perlakuan berbeda (100 mg/kgBB, 150 mg/kgBB, dan 200 mg/kgBB) menunjukkan nilai rata-rata ekspresi yang lebih rendah dibandingkan dengan kontrol ( $1,04 \pm 0,15$ ).

**Kesimpulan :** Ekspresi mRNA FSHR ovarium tikus (*R. norvegicus*) fase folikuler lebih rendah dibandingkan kontrol dengan pemberian kurkumin dosis 100 mg/kgBB dan ekspresi mRNA LHR lebih rendah dibandingkan kontrol dengan pemberian kurkumin dosis 100 mg/kgBB, 150 mg/kgBB dan 200 mg/kgBB walaupun tidak berbeda bermakna secara statistik.

**Kata kunci :** Kurkumin, fase folikuler, mRNA FSHR, mRNA LHR.

## ABSTRACT

**Background:** The reproductive activity and release of steroid hormones are regulated by the HPG axis, which includes the hypothalamus, pituitary, and gonads. The pituitary can secrete FSH and LH, which play a role in the regulation of FSH and LH receptors (FSHR and LHR) through estrogenic positive and negative feedback. Curcumin has phytoestrogenic properties that can lower FSH and LH levels through hypothalamic-pituitary negative feedback so that it can inhibit the expression of mRNA FSH and LH receptor.

**Purpose:** To investigate the effect of curcumin administration on the expression of mRNA FSH and LH receptor (FSHR and LHR) in the ovaries of *Rattus norvegicus* strain Wistar in the follicle phase.

**Methods:** The study used frozen ovaries of female rats (*R. norvegicus*) of the Wistar strain with a sample of 24 animals. It was divided into 1 control group and 3 treatment groups with curcumin doses of 100 mg/kgBB, 150 mg/kgBB, and 200 mg/kgBB. Each group consists of six birds with a post-test control group design. Expression of ovarian FSHR mRNA and LHR mRNA was tested using the qRT-PCR method. Statistical analysis was carried out using SPSS one-way Anova.

**Results:** The results indicated at the expression level, the FSHR mRNA and LHR mRNA were not statistically significant with significance level of 0.98 and 0.85 ( $p > 0.05$ ) respectively. However, 100 mg/kgBB FSHR mRNA had lower average value compared to the control ( $1.06 \pm 0.35$ ) while 150 mg/kgBB and 200 mg/kgBB FSHR mRNA resulted in higher average value than the control. Moreover, LHR mRNA in three different treatments (100 mg/kgBB, 150 mg/kgBB, and 200 mg/kgBB) showed lower average value compared to the control ( $1.04 \pm 0.15$ ).

**Conclusion:** The expression of FSHR mRNA of the rat ovaries (*R. norvegicus*) in the follicular phase was lower compared to controls with a dose of 100 mg/kgBB curcumin adduction and the expression of LHR mRNA was lower compared to controls with a dose of 100 mg/kgBB, 150mg/kgBB, and 200 mg/kgBB of curcumin adduction although there isn't any statistically different significance.

**Keywords:** Curcumin, Follicular phase, FSHR mRNA, LHR mRNA.