

Efek Asam Galat, Heptil Galat dan Oktil Galat terhadap Mekanisme Regulasi Apoptosis Intrinsik Stroma Endometriosis In Vitro : Kajian Ekspresi mRNA Bax, Bcl-2, dan Caspase-3 = The Effect of Gallic Acid, Heptyl Gallate, and Octyl Gallate on Intrinsic Apoptosis of Endometriotic Stromal In Vitro : Study on Bax, Bcl-2, and Caspase-3 mRNA Expression

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Abstrak

Latar Belakang. Endometriosis ditandai dengan pertumbuhan jaringan endometrium di luar uterus, salah satunya disebabkan oleh disregulasi apoptosis sel yang memicu ketahanan sel ektopik. Asam galat dan turunannya pada beberapa penelitian mampu menghambat karsinogenesis pada beberapa cell line kanker. Penelitian kami terdahulu membuktikan asam galat dan turunannya dapat menekan proliferasi sel dan meningkatkan apoptosis sel endometriosis in vitro, namun efeknya terhadap mekanisme jalur apoptosis instrinsik belum di buktikan. Metode. Sel endometriosis berasal dari jaringan endometrium pasien laparaskopi, diisolasi secara enzimatik dan dikultur primer. Sel kultur diberi perlakuan asam galat, heptil galat, oktil galat dengan dosis 51,2 g/ml, 102,4 g/ml dan 153,6 g/ml selama 48 jam, dilanjutkan induksi 10 ng/ml LPS selama 24 jam . Kelompok kontrol hanya di induksi LPS tanpa perlakuan. Ekspresi relatif mRNA Bax, Bcl-2, dan Caspase-3 dinilai dengan qRT-PCR. Hasil. Peningkatan tertinggi ekspresi mRNA Bax dan penekanan tertinggi ekspresi mRNA Bcl-2 pada oktil galat dosis 153,6 g/ml. Peningkatan ekspresi mRNA Bax, dan penurunan ekspresi mRNA Bcl-2 akan di ikuti dengan peningkatan ekspresi mRNA Caspase-3. Secara statistik tidak terdapat perbedaan bermakna antara kelompok perlakuan dengan ekspresi mRNA Bax, Bcl-2, dan Caspase-3 ($p > 0,05$). Kesimpulan. Oktil galat, asam galat, dan heptil galat memiliki efek potensial pada mekanisme apoptosis instrinsik.

.....Background. Endometriosis characterized by the presence of extrauterine endometrial tissue, one of which caused by disregulation of apoptosis that contribute of endometrial ectopic survival. Our previous research has proven that gallic acid and its derivatives can suppress proliferation and induce apoptosis endometriosis cell in vitro. However, the effect of gallic acid and its derivatives on apoptosis intrinsic pathway mechanism is not proven yet. Method. Endometriosis cell from endometriosis patients who had undergone laparoscopy surgery were isolated by enzymatic reaction and primary cultured. Cultured cells treated by gallic acid, heptyl gallate and octyl gallate each with dosage 51.2 g/ml, 102.4 g/ml, 153.6g/ml for 48 hours, than induced by LPS 10 ng/ml for 24 hours. Parameter research was assessed by qRT-PCR for mRNA expression of Bax, Bcl-2, Caspase-3. Result. Octyl gallate showed more effect to induce apoptosis intrinsic . Endometriosis cell were treated with octyl gallate shown increases of Bax and Caspase3 mRNA expression than decrease of Bcl-2 mRNA expression. Statistically, mean differences are not significant between treatment groups and mRNA expression ($p > 0.05$). Conclusion. This study exhibited that octyl gallate has a more potential effect on apoptosis intrinsic in endometriosis cell cultures followed by gallic acid and heptyl gallate and their potency as treatment for endometriosis.