Uji Aktivitas Antikanker dari Ekstrak Etanol Propolis dari Homotrigona fimbriata dan Tetragonula biroi Menggunakan Uji MTT pada Kultur Sel HepG2 = Anticancer Activity Assay of Ethanolic Extracts of Propolis from Homotrigona fimbriata and Tetragonula biroi Using MTT Assay on HepG2 Cell Culture

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Abstrak

Propolis merupakan zat resin yang diproduksi oleh lebah tak bersengat yang memiliki berbagai manfaat untuk kesehatan. Salah satu manfaat yang dimiliki oleh propolis adalah antikanker. Aktivitas antikanker yang dimiliki oleh propolis diduga berasal dari kandungan yang dimilikinya, terutama senyawa fenol maupun flavonoid. Tujuan dari penelitian ini adalah untuk menguji dua ekstrak etanol propolis dari lebah Homotrigona fimbriata dan Tetragonula biroi terkait aktivitasnya sebagai antikanker terhadap sel HepG2. Di samping itu, dilakukan pula penetapan kadar fenol total serta kadar flavonoid total. Kedua propolis diekstraksi secara maserasi kinetik menggunakan pelarut etanol. Ekstrak yang diperoleh kemudian digunakan untuk penetapan kadar fenol melalui metode Folin-Ciocalteu dengan standar asam galat serta penetapan kadar flavonoid melalui metode kolorimetri AlCl3 menggunakan standar kuersetin. Uji antikanker dilakukan melalui uji MTT terhadap sel HepG2 untuk memperoleh nilai IC50. Dari hasil analisis, ditetapkan kadar fenol total untuk Homotrigona fimbriata sebesar 29,87 mgEAG/g dan untuk kadar flavonoid total sebesar 2,31 mgEK/g. Kadar fenol total Tetragonula biroi menunjukkan hasil sebesar 12,26 mgEAG/g dan kadar flavonoid 1,09 mgEK/g. Pada uji MTT diperoleh nilai IC50 Homotrigona fimbriata sebesar 2613,39 µg/mL dan Tetragonula biroi 4015,71 µg/mL. Dengan demikian, dapat disimpulkan bahwa ekstrak etanol propolis Homotrigona fimbriata dan Tetragonula biroi tidak aktif sebagai antikanker terhadap sel HepG2.

.....Propolis is a natural resinous mixture produced by stingless bees which propolis itself has various health benefits. An example of benefit that handed by propolis is anticancer. This anticancer activity suspected derive from its compounds, particularly phenolics and flavonoids. This research aimed to examine two ethanolic extracts of propolis that are collected from Homotrigona fimbriata and Tetragonula biroi related to their activity as anticancer agent towards HepG2 cell line. Besides that, determination of total phenolic content and total flavonoid content were observed too. The extraction of both propolis were performed by kinetic maceration using ethanol as solvent. The extracts then used to determine total phenolic content through Folin-Ciocalteu method using gallic acid as standard also determine total flavonoid content which carried out using AlCl3 colorimetric method with quercetin as standard. The anticancer activity test was done using MTT assay towards HepG2 cells to obtain IC50 value. From the analysis results, it was established that total phenolic level of Homotrigona fimbriata was 29,87 mgGAE/g and result for total flavonoid content was 2,31 mgQE/g. The result of determining total phenolic content from Tetragonula biroi was 12,26 mgGAE/g and the total flavonoid level was 1,09 mgQE/g. In MTT assay, the IC50 value for Homotrigona fimbriata was 2613,39 µg/mL and for Tetragonula biroi was 4015,71 µg/mL. Thus, it may be concluded that ethanolic extract of propolis collected from Homotrigona fimbriata and Tetragonula biroi are not active as anticancer agent against HepG2 cell line.