

## Uji Efek Kelasi Ekstrak Etanol Daun *Mangifera foetida* L. Dosis 0,5 mg Pada Feritin Serum Penderita Talasemia Secara Ex Vivo = The Ex Vivo Chelating Effect Test of Leaf Ethanol Extract of *Mangifera foetida* L. in 0,5 mg Dose at Ferritin Serum of Thalassemic Patients

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### Abstrak

Talasemia adalah penyakit monogenik paling umum di Asia, termasuk Indonesia. Pengobatan utama yang ada bersifat paliatif, yaitu transfusi darah secara teratur untuk mempertahankan kadar hemoglobin pada darah penderita. Komplikasi pasca transfusi darah adalah penyumbang mortalitas terbesar penderita akibat penumpukan besi. Studi ekstrak air daun *Mangifera foetida* L. yang mengandung mangiferin berhasil membuktikan adanya efek kelasi besi terhadap serum penderita talasemia pada dosis 0,75 mg dan 1,125 mg. Akan tetapi, polifenol seperti mangiferin yang diduga berefek sebagai agen kelasi diketahui lebih larut dalam pelarut organik yang kurang polar seperti etanol. Oleh karena itu, penelitian ini bertujuan untuk mengkonfirmasi penelitian sebelumnya dengan menggunakan etanol pada dosis yang lebih rendah, yaitu 0,5 mg secara ex vivo. Sebanyak 7 sampel serum dibagi menjadi 3 kelompok: kontrol negatif, kontrol positif dan kelompok uji ekstrak 0,5 mg. Indikator efek kelasi besi pada penelitian ini diukur dalam absorbansi oleh spektrofotometer pada panjang gelombang (?) = 200-400 nm. Uji hipotesis One-Way Anova menunjukkan adanya perbedaan bermakna di antara kelompok ( $p = 0,012$ ). Analisis lanjutan menggunakan uji Post-Hoc, kelompok uji berbeda bermakna dengan kontrol negatif ( $p = 0,004$ ) dan memiliki efek kelasi yang sama dengan mangiferin sebagai kontrol positif ( $p = 0,07$ ). Hasil penelitian ini membuktikan ekstrak *Mangifera foetida* L. dosis 0,5 mg memiliki efek kelasi besi pada serum penderita talasemia dan setara dengan 100  $\mu$ g mangiferin.

.....Thalassemia is the most common monogenic disorder in Asia, including Indonesia. The main therapy for this disorder is palliative blood transfusions to maintain adequate hemoglobin levels in the blood of patients. Unfortunately, the complication of post-transfusion is also the largest contributor to its mortality rates, mainly due to iron overload. A study of the aqueous extract from *Mangifera foetida* L. leaf containing mangiferin proved the effect of iron chelation on serum thalassemic patients at 0,75 and 1,125 mg dose but not better than 100  $\mu$ g of mangiferin. However, polyphenol such as mangiferin is hypothesized to be more soluble in less polar organic solvents such as ethanol. Therefore, this study aims to confirm the previous study by using ethanol as a solvent at lower dose, ie 0,5 mg. There were three experiment groups as follows: negative control group; 100  $\mu$ g of mangiferin as positive control group and the treated group of extract 0,5 mg. Our samples were obtained from 7 serums which were divided into 3 groups each. The indicator of iron chelation effect in this study was measured in absorbance by a spectrophotometer at = 200-500 nm wavelength (?). The indicator of iron chelation effect in this study measured in absorbance by a spectrophotometer at a wavelength (?) = 200-400 nm. The hypothesis was tested using One-Way Anova which shows a significant difference between groups ( $p = 0,012$ ). Further analysis using Post-Hoc test found that the ethanol extract had a significant difference against negative control ( $p = 0,004$ ) and the equal iron chelation effect with mangiferin 100  $\mu$ g as a positive control ( $p = 0,07$ ). This finding shows relevancy to previous study as a potential iron chelating therapy to thalassemic patients.