



Iron Chelation Ability of Granule Sappan Wood (*Caesalpinia Sappan*, L.) Extract on Iron-Overloaded

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Abstract : The research of chelation ability on two types of granule's formulation of sappan wood (*Caesalpinia sappan*, L) extracts on iron-overloaded rats (*Rattus norvegicus*, L.) has been done. The aims of the study were to determine the effective of formulation and the dose of granulated wooden cup extract to reduce the excess iron in rats indicating the condition of iron-overloaded in thalassemic patient due to blood transfusion. The research has been done using completely randomized design with 11 groups and three replications. Eight groups were administered with two formulations at dose of 0, 100, 200 and 400 mg/kgbw for each formula and the deferipron was taken for control groups. Both groups were given iron dextran. Parameters of iron state measured were the levels of ferritin, and transferrin. Data were analyzed with ANOVA and Duncan Multiple Test Distance. Results showed the administration of iron dextran at a dose of 60 mg/kg bw/day caused excess iron in rats which increased ferritin levels by 70%, and transferrin levels decreased by 33,5% ($p > 0,05$). Granule formula 2 was more effective in reducing excess iron in rats with ferritin reduced by 40% and transferrin increased by 19,1%. Extract dose 200 mg/kg bw /day in the preparation of granules is effective dose in iron chelating with ferritin levels decreased by 30,9% and decreased hepatic iron content of 54,3%. Extract dose of 200 mg / kg bw in the granule preparation is an effective dose for iron chelation with a decrease of 30.9% ferritin levels and transferrin levels 23.74%..

Key words : *Caesalpinia sappan* L., granule, iron state, thalassemia.

Introduction

Thalassemia is a hereditary disease due to imbalance of responsible genes in manufacture of one of the four amino acid chains in hemoglobin synthesis.^[1] Iron overload is documented in patients with thalassemia. Iron chelator, a molecule forming complex bond with iron ions, is likely the cause to reduce exaggerated levels of iron.^[2] Iron chelators commonly used are *Desferioxamine*, *Deferiprone* and *Deferasirox*. The third