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The Effect of Normal Dose Extract Gempur Batu Kejibeling (*Strobilanthus crispus* BL) to the Histological of Rat's Digestive Tract

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Abstract

Gempur batu kejibeling is a traditional medicine to cure the stone-renal very effective. Daily intake of infusa gempur batu kejibeling is suspected to induce the bleeding in intestinal for long term.This research was carried out to detect the influence of intake extract gempur batu kejibeling for 9 week to the histological of digestive tract on female rat. The twenty rats were divided into 2 groups: as Group I Control and Group II daily intake 10 mg/200 grBB of extract gempur batu kejibeling for 9 weeks. Decapitation of rat was conduct to take the oesophagus, stomach/gastri, intestinum of rat. All the organs were kept in the container with the formalin 12 %. Hematoxylin eosin was used to identify the cell and tissue. The histological of oesophagus, gastric and intestinum was compared between control group and treatment group. The cell and tissue construct of oesophagus showed the normal histological. There was not any defect. The cell and tissue construct of gastric also intestinum showed the normal histological. The intake of extract gempur batu kejibeling (*Strobilanthuscrispus,*BL) dose 10 mg/200 gr BB during 9 week was not damage the histological of oesophagus, gastric and intestinum of rat.

Keywords: stone-renal, *Strobilanthuscrispus,*BL, digestive tract

INTRODUCTION

Kidney stone diseases was caused by stone obstruction on calyx or pelvis renalis and also could induced nefritis diseases. Stone pluged urinary system that induced some bacteria in the urinary system. These bacteria infected the tissue .If this condition took longer urine could return to the inside of ren such as nephrone, then pressed the space as hidronephrosis. Currently more than three decades, the incidence of kidney stones increased very significant as a health problem.[1,2] Kidney stone disease is a risk factor for CKD,[3] cardiovascular disease,[4,5] and bone fracture.[6] Kidney stone was by some studies have also suggested an increased risk of hypertension with kidney stones.[7]

Strobilanthus crispus L Blemek, (Acanthaceae) or locally known as pecahbeling (pecahkaca) has gained great attention due to its high medicinal values. Another name is daun picah beling (Jakarta) enyohkelo, kecibeling, ngokilo in Java. Hei mian Jian jun: Chinese. The leaves of thia plant were oblong-lanceolate, rather obtuse and shallowly creante-crispate. Many scientific reports, gempurbatu kejibeling possessed antioxidant, free radical scavenging, anticancer, antidiabetic, antimicrobial, wound healing and antiulcerogenic activities.[8] *Strobilanthus crispus* contain of potassium, magnesium, sodium, iron, and phosphorous, vitamins (ascorbid acid, riboflavin, and thiamine), phenolic acids (p-hydroxybenzoic acid, p-coumaric acid, caffeic acid, vanillic acid, Ferulic acid and syringes acid), caffeine,tannin,alkaloid, cathecin. S.crispus also contain of cystolith calcium carbonate in which the infuse was alkaline. Kecibeling was a traditional medicine to treat diabetes mellitus, diuretic and high blood pressure. Kejibeling infusa was used to destroy kidney stone.Potasium in kejibeling as a strong diuretic.[9]

Indonesian Community used to cure the kidney stone using kejibeling leaf infusion. The infusion was mixed with other leaf such as tempuyung leaf, meniran, kumis kucing, and curcumin.It was not allow to use kejibeling leaf only due to the hazard possese mainly to the urinary tractus and digestoria tractus. It was not allowed to consume 2 grams as powder kejibeling, because of its strong diuretic. It was not permit to use kejibeling infuse more than 2 months, because some people was had a bad experiences during consume kejibeling infuse, they found their faces were bloody. This research conduct to prove the effect of kejibeling leaf infuse on normal dose to the tractus digestivus tissue on rat for 9 weeks.

MATERIALS AND METHODS

Material: a set of histological tissue equipment, a set of Hematoxylin Eosin equipment, a set of Extraction equipment, simplicia of strobilanthus crispus, BL.

Animal preparation: Twenty male Sprague Dawley rats, ± 200 grams body weight, 2 m.o. divided into 2 groups: dose I (10 mg),control (aquadest). The aclimatitation for mice was a week. Group dose 1 treated with 10 mg infusa kejibeling for 9 weeks one times a day. Group control with aquadest ad libitum. After 9 week rats are decapitated and organ of tractus digestivus were collecting and kept in formalin chamber. The research was conducted at Animal Laboratoy of UPHP Gadjah Mada university.

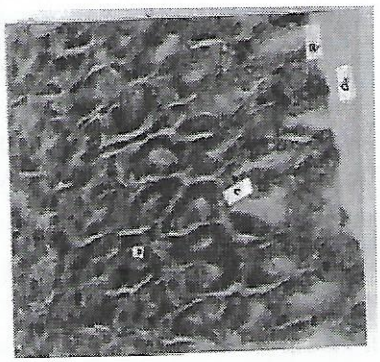
Ethanol exstraction: A hundred grams powder of simplisia kejibeling put in extraction column then watering with ethanol 70%. The eluat was transferred to rotary evaporator until concentrated. Then prepare for 10mg dose of extract for treatment group.

Coloring Hematoxylin Eosin: Step 1: Deparafinisasi (Xylol), Rehidration (alcohol, 90%), coloring 1 (nucleus and cytoplasma) using hematoxylin, Diffrentiation to reduce strong color for nucleus using HCL 0.6%, Blueing with Lithium carbonat 0.5 %. Step 2: second coloring with eosin to clear sitoplasma, dehidration with alcohol 90 %,Mounting with Canada balsam.

Data analysis: Descriptive analysis compare with normal histology.

RESULTS

Picture 1. Showed the histological of Tractus digestivus part of ventriculus both of control group and treatment group.

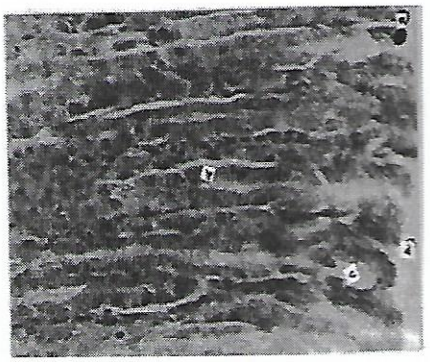


a.Columner cell

b.Parietal cell

c.Lamina propia

d.Lumen



1a.Ventrikulus , HE, 400X, control (aquadest)

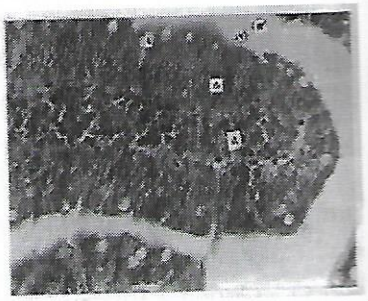
1b.Ventriculus , HE, 400X, 10 mg/200g BB (extract kejibeling)

Figure 1. Histological of ventriculus after intake extract of S. *crispus* for 9 weeks (1a. Control ; 1b 10 mg/200g BB).

Using HE coloring whole of ventriculus looked normal,both on control and treatment group also columner cells are consist as the commons epithelial cell in ventriculus looked normal.

Picture 2 showed the histological o duodenum part of tractus digestivus both of control and treatment group.

a."Striated border" (microvilli),
b.Epithelium Columner cel
c.Lamina Propia,
d.Lumen ,
e. Goblet cel



2a. Duodenum, HE, 400X, control (aquadest)

2b.Duodenum , HE, 400X, 10 mg/200g BB (extract kejibeling)

Figure 2. Histological of duodenum after intake extract of S. *crispus* for 9 weeks (2a. Control ; 2b 10 mg/200g BB).

Using HE coloring whole of dudenum looked normal, both on control and treatment groups columnar cell were consist as the commons epithelial cell in duodenum looked normal.

DISCUSSION

The formation of Renal stone and the predominant chemical stone composition are age and gender dependent.[11] The formation also due to genetic and environmental factors. The changes in 2 of the most important environmental factors-diet and climate-have the most significant impact on these trends. Although genetic factors influence stone risk, changes in the gene pool occur at a slow rate. The increased consumption of starchy foods derived from corn promoted obesity, currently a known risk factor for stone formation. There is strong evidence that diminished fluid and calcium consumption are risk factors. Increased oxalate consumption has also been demonstrated to promote stone formation. Epidemiologic studies have demonstrated that increased sodium and animal protein intake have an equivocal impact on stone risk. Most stones are formed in older patients. However, clinical observations have indicated not only a changing frequency and composition of urinary calculi but also a shift in gender and age-related

incidences.[11,12,13] Urinary stone disease remains rare in children with a stable overall incidence in most series.[14] As in adults, factors implicated in the metabolic syndrome complex such as obesity pose risks for urinary stone formation in children.[15]

Strobilantus crispus has Lethal dose 50 for ethanol extract greather than 600mg/ Kg BB. The toxic sign observed in the toxicity study was reflected indirectly to the some tissue of organ and systems due to effect of intake oral S.*crispus*. Low doses 600mg/ KgBB have not LD50 effect. Wahyjoedi et al (2003),[16] reported that subcronik toxicity of ethanol extrcat kejibeling wasnot harm for rats, it was safe to consume for 3 months on 12.5 mg/100 gBW and 125 mg/100 gBBW. This study used normal dose for human, during 9 weeks consumed daily showed that there were not affect to histological of tractus digestivus Event in community is rare to use single kind of strobilanthus crispus leaf to destroy kidney stone. Sari dewi (2009),[17] reported that infuse of leaf able to solve the kidney stone especially calcium oxalate invitro. The water infusion more effective to solve the calcium oxalate than fraction of water.

Strobilantus crispus has some important minerals such as Sodium, potasiun and populer as an alkaline properties. May be because of high potassium and sodium the calcium oxalate solved. This mechanism as hypothetic to propose how kejibeling leaf able to solve the kidney stone.

$$2K^{+} + CaC^{2}O^{4} \longrightarrow K^{2}C^{2}O^{4} + Ca^{2+}$$

(Batu ginjal/ tidak larut) (Larut) (Larut)

CONCLUSION

Strobilantus crispus Extract on various doses (10 mb/200 gBW) were not influence histological of rat's tractus digestivus.Dose 10 mg/200gBW is was lower than LD50 of *Strobilantus crispus.*

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