STUDY EFFECT OF CURCUMA LONGA RHIZOME EXTRACT ON LIVER CELL AFFECTED BY PASSIVE SMOKING

Expiremental study in Sprague Dawley Rats

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A thesis

STUDY EFFECT OF *CURCUMA LONGA RHIZOME EXTRACT*

ON LIVER CELL AFFECTED BY PASSIVE SMOKING

Expiremental study in Sprague Dawley Rats

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DECLARATION

"I am here declare that in this thesis is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledge is made in the text"

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List of abbreviations

(SD) ..... Sprague Dawely Rats

(Curcuma L) ..... Curcuma longa rhizoma extract

(N) ..... Number

(R) ..... Randomization

(CS) .....Cigaratte Smoke

ABSTRACT

Background: damage effect of the passive smoking in liver tissue range from liver cell changes to liver tissue inflammation,*Curcuma longa rhizoma* shows anti-inflammatory effect and antioxidant,however there is no literature about its regenerative effect .

Objective: to identify and analyze the regenerative effect *of Curcuma longa rhizoma* extract on passive smoking induced liver damage in SD Rats.

Methods: This experimental study used randomized post-test only control group design in 24 SD Rats given 5 cigar as passive cigarette smoking with 50 minute as interval time between each cigaratte daily for 10 weeks (groupA), 13 weeks (group B), 10 weeks (group C) + oral *curcuma longa rhizoma* exrtact with dose 80mg/.kg,B.W,after got passive smoke daily , 13 weeks (group D) + oral *Curcuma longa rhizoma exrtact* with dose 80mg/kg,B.W, after got passive smoke daily ,The liver tissues were HE stained and observed for liver cell change,and immunohistochemistry was undertaken to count the percentage of TNF-α stained according to Allred Score.

Result: the difference among groups (A&C) were statistically significant (p=0.01). and between groups (B&D) statistically significant (p=0.003) regenirative effect for the liver cell changes ,the difference of TNF-α expression among groups (A&C)was non statistically significant (p=0.5), and between (B&D) groups were statistically significant (p=0.04).

Conclusion: there was regenerative effect on liver cell changes in groups with *Curcuma longa rhizoma* extract and also there was regenerative effect on the TNF-α expression with *Curcuma longa rhizoma*

Key Words ;Curcuma longa rhizoma extract ,cigarette smoking , liver nucleaus nucleaus change , TNF-α expression

ABSTRAK

Latar Belakang: Merokok pasif dapat menyebabkan peradangan sel hati yang menyebabkan perubahan pada sel hati yang dapat berlanjut menjadi sirosis hepatis pada penggunaan yang lama dan berulang. (*curcuma longa rhizome* , namun efek temulawak terhadap inflamasi dan kerusakan hati yang disebabkan merokok pasif belum pernah dilakukan.

Tujuan: Mengidentifikasi dan menganalisis pengaruh ekstrak *curcuma longa rhizoma* terhadap kerusakan hati yang disebabkan merokok pasif pada tikus Spraque Dawley.

Metode: Penelitian eksperimental hewan coba, dengan desain *randomized post test only control group*. Sampel 24 ekor tikus Spraquy Dawley dibagi menjadi 4 kelompok yang dipaparkan dengan 5 rokok pasif dengan interval tiap rokok 50 menit setiap hari selama 10 dan 13 minggu. Dua kelompok diberi ektrak *curcuma longa rhizoma* dosis 80 mg/kg bb setelah paparan asap rokok secara pasif tiap hari dan dua kelompok lain tidak diberikan *Curcuma longa rhizoma* . Jaringan hati diwarnai HE dan diperiksa adanya pembesaran, karyorhexis, dan karyolisis inti dan ekspresi TNF-α

Hasil; Perubahan nukleus sel hati kedua kelompok yang diberikan ekstrak *curcuma longa rhizoma* dibandingkan dengan kelompok kontrol. antara kelompok A & C ($p = 0,01$), kelompok B & D ($p = 0,003$) . Terdapat perbedaan bermakna ekspresi TNF-α pada kelompok B & D($p = 0,002$) sedangkan kelompok A & C tidak ada perbedaan bermakna ($p = 0,1$. Peningkatan lama pemberian curcuma longa mempengaruhi ekspresi TNF-α akibat pemberian rokok pasif.

Kesimpulan: Pemeberian extrak *curcuma longa rhizoma* dapat menurunkan aktivitas inflamasi dan perubahan sel hati akibat pemberian asap rokok secara pasif.

Kata kunci : C*urcuma longa rhizoma* ,kerusakan hati, TNF-α rokok pasif