## ฤทธิ์ของอินโคลอัลควลอยค์จากต้นเครือสี่เหลี่ยม ใน การลคการเกร็งตัวของกล้ามเนื้อเรียบ



นางสาวเกคีนี สร้อยสุวรรณ

วิทยานิพนธ์นี้ เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญา เภสัชศาสตรมหาบัณฑิต ภาควิชาสรีรวิทยา บัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย พ.ศ. 2528 ISBN 974-564-582-6

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# ANTISPASMODIC ACTIVITY OF INDOLE ALKALOIDS FROM UNCARIA SALACCENSIS

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บทคัดยอ

อินโคลอัลกาลอยค์ ซึ่งสกัคจากตนเครือสี่เหลี่ยม (Uncaria salaccensis) มี

19-epi-3-isoajmalicine (I-1), 3-isoajmalicine (I-2), uncarine B (O-1)
และ mitraphylline(O-2) ได้ทำการศึกษาฤทธิ์ของอัลกาลอยค์เหล่านี้ต่อลำไสของกระต่าย
และหนูตะเภาที่แยกออกมาเพื่อศึกษาถึงฤทธิ์ในการลดการเกร็งตัวและฤทธิ์ในการยับยั้งการหดตัว
ที่เกิดจาก 5-hydroxytryptamine(5-HT) จากนั้นได้ทำการศึกษาต่อในเส้นเลือดเอออร์ต่า
ที่แยกออกมา พบว่า อัลกาลอยค์ทุกตัวมีฤทธิ์ลดการหดตัวของลำไส้กระต่ายและความตึงขณะพักของ
ลำไส้หนูตะเภา ในลำไสของหนูตะเภาที่แยกออกมา I-1 ยับยั้งการเกร็งตัวที่เกิดจาก 5-HT
ขณะเดียวกันไม่มีผลต่อการเกร็งตัวที่เกิดจาก carbachol, histamine และ barium I-2
ยับยั้งการเกร็งตัวที่เกิดจากทั้ง 5-HT และ carbachol แต่เห็นผลในการยับยั้งมารเกร็งตัวที่เกิดจาก 5-HT ใดมากกว่าขณะเดียวกันไม่มีผลต่อการเกร็งตัวที่เกิดจาก histamine และ barium
O-1 และ O-2 ในขนาดที่สู่งลดการเกร็งตัวที่เกิดจาก carbachol แต่ไม่มีผลต่อสารตัวอื่นๆ
ในเส้นเลือดเอออร์ตาที่แยกออกมา ได้ผลเช่นเดียวกันคือเฉพาะ I-1 และ I-2 สามารถลด
ฤทธิ์ในการเกร็งตัวของ 5-HT จากผลการหดลองนี้ชี้ให้เห็นว่า อัลกาลอยค์2ตัวคือ I-1
และ I-2 มีคุณสมบัติในการเป็น antiserotonergic โดย I-1 มีความจำเพาะมากกว่า
I-2

and manivine,

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Uncaria salaccensis

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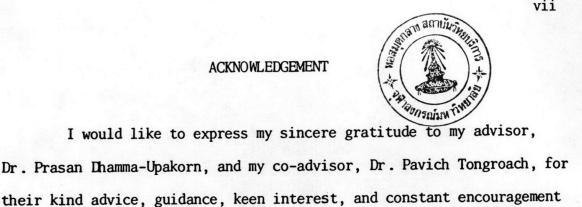
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#### ABSTRACT

Four indole alkaloids characterized as 19-epi-3-isoajmalicine (I-1), 3-isoajmalicine (I-2), uncarine B (O-1) and mitraphylline (O-2) were isolated from a Thai native plant, Uncaria salaccensis. The alkaloids were tested on isolated intestine of rabbit and guinea-pig in order to determine the antispasmodic activity and antagonistic effect on 5-hydroxytryptamine (5-HT). Further test was also performed on isolated aortic strip to study the alkaloids' effects on antiserotonergic properties. The four alkaloids reduced spontaneous movements of rabbit jejunum as well as the resting tension of ileum from guinea-pig. In guinea-pig ileum, I-1 preferentially antagonized spasmodic action of 5-hydroxytryptamine (5-HT), while the contractile responses to carbachol, histamine and barium, were unaffected. I-2, however, reduced contracture induced by both 5-HT and carbachol, although antagonism with higher degree of preference was observed with 5-HT. The responses to histamine and barium were unaffected by I-2. O-1 and O-2 at high doses reduced contracture induced by carbachol, while the contractile responses to 5-HT, histamine and barium were unaffected. The 5-HT induced contraction on aortic strips were also reduced especially by both of I-1 and I-2. The conclusion has been drawn that the two alkaloids, I-1 and I-2, have antiserotonergic properties, with I-1 being more specific and potent than I-2.

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<sup>o</sup>C degree celcieus

 $EC_{50}$  the concentration which produced 50% inhibition of the

control

Fig. figure

g gram

h hour

5-HT 5-hydroxytryptamine (serotonin)

1 liter

M molar

μM micromole

%max percent maximum

min minute

M.W. molecular weight

NA noradrenaline

P probability

S.E. standard error

s second

pA<sub>2</sub> negative logarithm of the molar concentration of the

antagonist which causes a 2-fold increase of the agonist

concentration to obtain the same response

pD<sub>2</sub> negative logarithm of the molar concentration of the

antagonists that produces 50% reduction of the maximal

effects obtained with an agonist.



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