PHARMACOLOGICAL ACTIVITIES OF SOME PLANTS OF FAMILY ZINGIBERACEAE

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Plants of family Zingiberaceae are widely used in traditional medicines. Their reputed efficacy can be represented as pharmacological activities of 4 categories.

Category I : Activities which are used in females as : abortifacients emmenagogues, menstruation regulators, post partum preventive medicines, etc...

Category II : Analgesic, anti-inflammatory, antipyretic, antirheumatism and diaphoretic activities.

Category III : Activities which are used to treat respiratory disorders, such as : antiasthma, antitussive, expectorant, etc...

Category IV : Activities which are used to treat various conditions of gastrointestinal disorders, e.g. : as antiemetics, antipeptic ulcers, antispasmodics, carminatives ; to treat abdominal disorders as dysentery and indigestion, etc...

Among numerous pharmacological activities of Zingiberaceous plants : anti-inflammatory, bronchodilator and uterine stimulant/relaxant activities are of interested. Some Zingiberaceous plants found in Thaïland and also compounds derived from 2 species : *Boesenbergia pandurata* and *Zingiber cassumunar* were screened for these activities. The rat uterus *in situ*, and carrageenin-induced paw edema in rat experiments were used in the screening for uterine stimulant/relaxant, and anti-inflammatory activity, respectively. Results obtained are shown in Tables 2 and 3.

Of the two compounds : 5,7-dimethoxy flavone and 5,7-dihydroxy flavanone known to present in the hexane fraction of *Boesenbergia pandurata*, only the former showed anti-inflammatory activity (Table 4). It was found to be effective in acute but less effective in chronic inflammation, and its anti-inflammatory activity was suggested to be due to prostaglandin synthesis inhibition (1).

Compound D : E-4-(3', 4' -dimethoxyphenyl)-but-3-en-1-ol, and its acetate and palmitate derivatives isolated from hexane extract of *Zingiber cassumunar* were found to have anti-inflammatory activity (Table 5). In addition, compound D has been found to exert a uterine relaxant activity which is not via a *beta* adrenergic receptor stimulation (2).

Table 3 : Anti-inflammatory activiy of crude extracts of some Zingiberaceous plants.

Plants	**Types of extracts**	**Dose mg/kg (orally)**	**% inhibititon of carrageenin induced rat paw edema**
Boesenbergia pandurata	MeOH	500	9.61^c
(Black variety)	$CHCl_3$	500	15.75^c
	Hexane	500	46.41^a
Boesenbergia spp. (En leuang)	MeOH	500	45.38^a
Boesenbergia spp. (Rahng jeut)	MeOH	500	55.34^a
Curcuma spp.	MeOH	500	34.61^b
(Plai daeng)	$CHCl_3$	500	10.81^c
	Hexane	500	24.75^b
Zingiber cassumunar	MeOH	500	73.26^a
	Hexane	500	35.97^b

a = good anti-inflammatory activity (>40% inhibition)
b = moderate anti-inflammatory activity (20-40% inhibition)
c = weak anti-inflammatory activity (<20% inhibition)

Table 4 : Anti-inflammatory activity of hexane extract and flavanoid present in *Boesenbergia pandurata*.

Extract / Compounds	**Dose mg/kg (orally)**	**% inhibition of carrageenin in duced rat paw edema**
Hexane extract	500	46.41^a
5,7-dimethoxyflavone	300	43.80^a
5,7-dihydroxyflavanone	300	-
Acetyl salicylic acid	300	45.40^a

a = good anti-inflammatory activity (>40% inhibition)

Table 5 : Anti-inflammatory activity of hexane extract and compounds present in hexane extract of *Zingiber cassumunar*.

Extract / Compounds	Dose mg/kg (orally)	% Inhibition of carrageenin induced rat paw edema
Hexane extract	500	73.26a
Compound B	100	34.78b
Compound D	100	51.91a
Acetate ester of compound D	100	60.07a
Palmitate ester of compound D	100	38.21b
Acetyl salicylic acid	300	65.37a

a = good anti-inflammatory activity (>40% inhibition)
b = moderate anti-inflammatory activity (20-40% inhibition)

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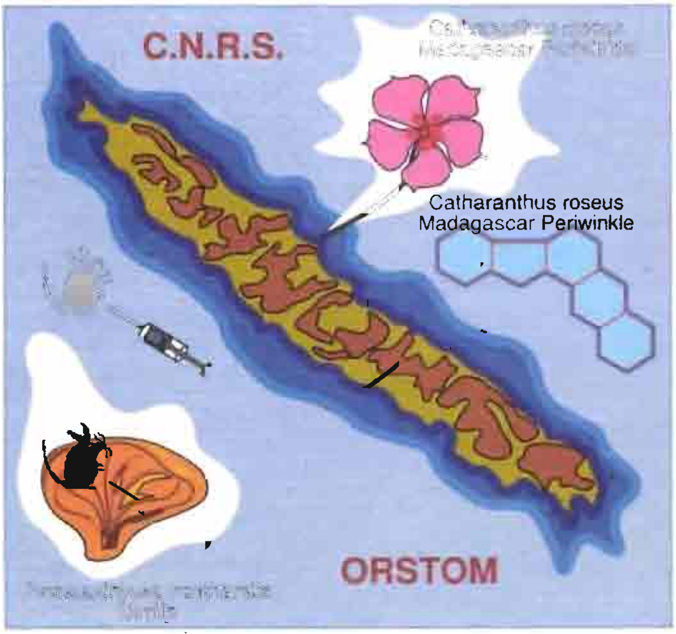

Pseudaxinyssa cantharella
Girolle