SMILAX MYOSOTIFLORA AND APHRODISIAC PROPERTY: IS IT A FACT OR FOLKLORE?

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ABSTRACT

Smilax myosotiflora, commonly known as ubi jaga in Malaysia, from the family of Liliaceae, is a slender, climber, found in Malaysia. Its rhizome has a great reputation as an aphrodisiac but the leaves and fruits are used internally for syphilis among the locals and natives in Malaysia. The common method of taking the rhizome is by chewing it with betel (Burkill 1993; Perry, 1980).

Therefore, extracts obtained from the rhizome of this plant were extensively studied on the male sexual behaviour in rats using a battery of *ex copula* behavioural test *viz.* penile erection index and homosexual mountings. Results showed that these extracts significantly ($p < 0.05$) increased the penile erection index when compared with the control male rats but without homosexual mountings during the 1 hour observation period, thus identifying the plant as sexual stimulant.

Hence, this study further supports the folk use of this plant as having aphrodisiac property.

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Burkill, I.H. (1993). *A Dictionary of the economic products of the Malaya Peninsula*. Ministry of Agriculture Malaysia, Kuala Lumpur, pg. 2073-2075.

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INTRODUCTION

Smilax myosotiflora (Liliaceae) is commonly known as Ding, Itah besi, Akar Ali, Akar tanding, Kerating, Itah, Ubi jaga, Ubi besi, tongkat Ali, Dedawai berisi, Sedawai, Caring, Ali bertinggung, Akar dedingin, Akar restong, Keleh, Manto, Maso.

The plant is found in Siam, the Malay peninsular and Jawa, has a great reputation as an aphrodisiac among the Malays and the jungle tribes alike, and by natural extension, it is regarded as a cure for syphilis (Burkhill, 1993).

The rhizome is eaten as an aphrodisiac, and the leaves and the fruits which are used internally for syphilis (Perry, 1980).

Chemical compounds obtained from this plant were stigmasterol, sitosterol and campesterol (Hasnah & Shaida, 2000).

Pharmacological evaluation from this plant possessed significant activity against enterobacterial infections in human (Hasnah *et al.*, 1999).

Besides this, this plant was able to counteract the inhibitory effects of glycyrrhizic acid (active ingredient of liquorice) (Damanyanthi *et al.*, 2000) and the deleterious effects of corticosterone (glucocorticoid) (Damanyanthi *et al.*, 2000a) on testicular 11β-hydroxysteroid dehydrogenase oxidative activity, as well as plasma testosterone levels in intact rats.

Further studies also showed that this plant and deoxycorticosterone (corticosteroid) competitively blocked each other at the glucocorticoid receptor in affecting the above oxidative activity and as such, administration of this plant counteracted the effects of deoxycorticosterone on plasma testosterone levels in normal rats (Damayanthi *et al.*, 2001).

In addition, this plant counteracted the effects of dexamethasone (glucocorticoid) on plasma testosterone and estradiol levels in normal rats (Damayanthi *et al.* 2003).

Therefore, the purpose of this study is to investigate sexual behaviour in rats using a battery of *ex copula* behavioural test *viz.* penile erection index and homosexual mountings.

MATERIALS AND METHODS

The extracts were obtained using the method previously described (Ang & Sim, 1997).

Pharmacological evaluation on the penile erection index (PEI) and homosexual mountings were tested using the methods previously described (Ang & Sim, 1997).

The penile erection study was carried out following the methods previously described (Benassi Benelli *et al.*, 1979; Baggio & Ferrari, 1983).

Penile erection for each rat was recorded during the one-hour observation period when the rat displayed copulatory movements in an observation cage (Mendelson & Gorzalka, 1987).
PEI was obtained by multiplying the percentage of rats exhibiting at least one episode of penile erection during one hour of observation by the mean number of penile erections.

For *homosexuality* study, the occurrence of homosexual mounting was recorded when a male rat mounted another male rat, making copulatory movements with or without penile erection.

Statistical analyses were carried out using the method previously described (Schefler, 1984).

RESULTS AND DISCUSSION

Generally, the results showed that

- no homosexual mounting was observed during the investigation period.
- various fractions of this plant produced a significant increase in the PEI which was dose-dependent and recurrent when compared with the control ($p < 0.05$), with aqueous fraction the most active fraction.

Table 1: Effects of *S. myosotiflora* on homosexual mountings and PEI

Treatment extract	Dose (mg/kg)	Homosexual mountings (n)	PEI (n)
Control	-	28.33 ± 2.13 (20)	Absent (6)
S. myosotiflora			
Chloroform	200	26.20 ± 1.23 (20)	Absent (6)
	400	28.23 ± 1.45 (20)	Absent (6)
	800	29.23 ± 2.31 (20)	Absent (6)
Methanol	200	26.23 ± 2.13 (20)	Absent (6)
	400	29.23 ± 2.11 (20)	Absent (6)
	800	32.31 ± 1.21 (20)*	Absent (6)
Aqueous	200	35.23 ± 1.23 (20)*	Absent (6)
	400	42.53 ± 1.23 (20)*	Absent (6)
	800	45.23 ± 1.54 (20)*	Absent (6)
Butanol	200	32.31 ± 1.23 (20)*	Absent (6)
	400	35.53 ± 1.25(20)*	Absent (6)
	800	36.23 ± 1.28 (20)*	Absent (6)

Penile erection index (% rats exhibiting at least 1 episode of penile erection during one hour x number of penile erections) is expressed as mean ± s.e.m.
* $p < 0.05$ compared with control; n = number of rats used during investigation

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