Aphrodisiac Effect of *Lunasia amara* Blanco, *Centella asiatica* and *Curcuma domestica* Combination Infusion on Male Rat Libido

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Abstract

*Sanrego (*Lunasia amara *Blanco) is a plant having stimulant effect on nervous cell and ability toimprove health of body system. Preliminary study showed that methanol extract of* Lunasia amara *Blanco wood at a dose administration of 10 mg/200 g body weight had aphrodisiac effect in Wistar white rat.* Centella asiatica *and* Curcuma domestica *have role as excipient. The objective of this research was to determine the aphrodisiac effect of the infusion of* Lunasia amara *Blanco,* Centella asiatica *and* Curcuma domestica *on strain SD rats. The frequencies of introduction, climbing and coitus of male rats were counted as aphrodisiac effect parameter. The concentrations of pre- and post-treatment of male rat testosterone hormone were determined using rat testosterone ELISA kit. There were significant differences of introduction (P=0.019) and coitus (P=0.042) frequencies between male rat group which administered by combination infusion of* Lunasia amara *Blanco,* Centella asiatica *and* Curcuma domestica *and group was not given. There was no significant difference between the testosterone levels of male rat group administered by combination infusion and group that was not given the infusion (P=0.107). The combination infusion of* Lunasia amara *Blanco,* Centella asiatica *and* Curcuma domestica *had aphrodisiac effect on male Sprague-Dawley rats libido.*

Key words: *Aphrodisiac, toxicity,* Lunasia amara *Blanco.*

INTRODUCTION

Aphrodisiac taken from "Aphrodite", the goddess of love, beauty and loyalty of the Greeks. In Roman mythology "Aphrodite" Goddess called Venus, who is Zeus and Dione's daughter. "Aphros" in Greek means foam or froth. Aphrodisiac can be described as a substance that can increase sexual stimulation or sexual pleasure.

Preliminary studies have shown that plants such sanrego (*Lunasia amara* Blanco) containing compounds such as saponins, alkaloids, tannins and other compounds that are physiologically able to improve blood circulation in the central nervous system (cerebral) or peripheral blood circulation (peripheral). The increasing blood circulation effect also occurs in the male genital. Increased blood circulation will improve organ function (Hidayat, 2005).

Sanrego is one of the herbs having aphrodisiac properties which can improve sexual libido (Muhtadi 1999). Nurlaila (2000) reported that *Lunasia amara* Blanco contained steroids. Orally administration of 1 ml only *Lunasia amara* Blanco infusion for 15 days showed aphrodisiac effect on 3 day old roosters children (Hotimah and Widyatmoko, 2000). Aphrodisiac effect was also reported by Arnida (2008) from administration of *Lunasia amara* Blanco methanol fraction (10 mg/200 g BW)

(obtained from the fractionation of 80 g of methanol extract from 600 g of powder) on Wistar male white mice.

The purpose of this investigation was to determine the aphrodisiac properties of the infusion of combination *Lunasia amara* Blanco, *Centella asiatica* and *Curcuma domestica* on SD male rat.

METHODS

This research is an experimental pharmacological study using health Sprague Dawley (SD) white rats (*Rattus norvegicus*), male and female, 2.5 to 3-month-old. Rats obtained from Experimental Animal Care Unit of Universitas Gadjah Mada, Indonesia. For aphrodisiac test, there were control and treatment group (each group consisted of 1 male rat and three female rats with three times replications for each).

Determination of main component dose of *Lunasia amara* Blanco. (390 mg/200 g BW) was based on previous preclinical trials. The additional components, i.e. *Curcuma domestica* (182 mg/200 g BW) and *Centella asiatica* (109.2 mg/200 g BW) were based on the empirical use, which were converted to rat dose (multiplied by an extrapolation factor of 0.0182).

Before the study began, experimental rats were acclimatized for 7 days, maintained in the experimental pharmacology laboratory of Medicinal Plant and Traditional Medicine Research and Development Center, given drink ad libitum and fed with chow in the form of pellets.

Aphrodisiac activity test was conducted by orally administering the samples infusion to treatment rat groups daily for 7 consecutive days. On the fifth day (48 hours before the observation) female rats were subcutaneously injected with estradiol valerate 50 mg/rat to induce artificial estrus. Then on the seventh day male rats were placed in a cage with the three females to observe male rats sexual behaviors including the frequency of introduction, climbing and coitus, started at 06.00-07.30 p.m. The introduction frequency was calculated when male rats started to approach the female rats and kissing around the tail or body parts of female rats. Climbing was calculated when the male rat ride to female rats, while coitus was calculated from the mating frequency of male rats to female rats. Orbital venous blood sampling through the male rats eyes performed at days 0 and 7. Blood samples were centrifuged and then the serum was used for determination of testosterone levels with rat testosterone ELISA kit.

Statistical analysis was conducted using both paired and unpaired t-test by SPSS version 16 (Dahlan MS, 2011). This aphrodisiac study received ethical clearance from Ethics Committee of National Institute of Health Research and Development, Ministry of Health of Indonesia.

RESULTS

As many as 24 experimental rats included in this assessment, consisted of 18 female rats and 6 male rats.

From t-test, it revealed that there were significant differences of introduction (P=0.019) and coitus (P=0.042) frequentcies between male rat group which were administered by sample infusion of *Lunasia amara* Blanco, *Centella asiatica* and *Curcuma domestica* and the group which was not given the infusion.

The other observation parameter was pre- and post-treatment of testosterone hormone concentration of male experimental rats. Table 2 shows that there is no significant difference between the testosterone levels of male rats administered by sample infusion and the rats that were not given the infusion(P=0.107).

DISCUSSION

This research was an experimental pharmacological study involving Sprague Dawley (SD) white rats (*Rattus norvegicus*) as experimental animals. So

Table 1. Introduction, climbing and coitus frequencies of control and treatment group

	Introduction			Climbing			Coitus		
		Mean	P		Mean	P		Mean	P
Control	2			3			0		
	2	2.00	1.000	4	3.67	1.000	0	0.00	1.000
	2			4			0		
Treatment	38			9			5		
	25	30.33	0.019	19	15.33	0.065	4	5.67	0.042
	28			18			8		

Table 2. Pre and post-treatment of testosterone hormone concentration of male experimental rats

Groups	Pre-treatment		Post-treatment	
	Mean	P	Mean	P
Sample	0.882		1.289	
	0.649	0.107	0.732	0.107
	0.962		1.296	
Control	0.896		0.945	
	0.516	0.460	0.486	0.460
	0.605		0.661	

that, in observation of introduction, climbing and coitus frequencies were influenced by the animal mood and environment factor. Differences in the intensity of male rat group sexual behavior was expected to be caused by differences in steroid levels (testosterone) in the blood. This means that the provision of sample infusion had a positive aphrodisiac effect on elevated levels of blood steroid, which in turn having implications on increasing sexual libido.

The having mate tendency of male rats on treatment group could be caused by specific compound contained in *Lunasia amara* Blanco. In general, plants possessing aphrodisiac activity contain saponins, alkaloids and other compounds. *Lunasia amara* Blanco contains lunacridin, an efficacious compound as a body reinforcement and blood circulation acceleration. While *Centella asiatica* and *Curcuma domestica* as additional support material.

There was no significant difference between the testosterone levels of male rats given sample infusion and those which were not given the infusion (P=0.107). Hence, it can be concluded that the administration of *Lunasia amara* Blanco, *Centella asiatica* and *Curcuma domestica* infusion did not cause a significantl increase in testosterone levels of male rats.

CONCLUSION

The infusion of *Lunasia amara* Blanco (390 mg/200 g), *Centella asiatica* (109.2 mg/200 g) and *Curcuma domestica* (182 mg/200 g) posses aphrodisiac effect on male rats libido.

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