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# Proceedings

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MEDICINAL PLANTS**

in occasion of

**the 38<sup>th</sup> Meeting of National Working Group on Indonesian Medicinal Plant**

**21-21 July 2010  
Surabaya, Indonesia**

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## THE EFFECT OF KATU INFUSE (*SAUROPUS ANDROGYNUS*) LEAVES ON SPERMATOGENESIS IN TESTIS SEMINIFEROUS TUBULES OF MICE (*MUS MUSCULUS*)

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**Abstract :** Katu leaves contain steroid substances. Steroid substances in blood can deinhibids indirectly hypothalamus activity and inhibits secretion of GnRhH. Reduction of GnRH in the blood from hypothalamus cause inhibits FSH and LH secretion from pituitary gland, resultion in the disruption of spermatogenesis proces. Material consist of infuse sauropus androgynans leaves and 60 male mice of 8 weeks old. With 20-30 grams body weight, were devided into control. Group and streatment groups. Data were analyzed using Anova test. If the results indicated significant of different of 95%, the analyzed was continued with Duncan test. The result of this exptiment are : The heightening of the infuse concentration of anropus androgynus leaves were treated 0,5 cc infuse per oral / per day, caused decreases of the cell association number, the spermatosit number, and the spermatid number in testis seminiferous tubules of mice. So the infuse of samropus androggnus leaves will be consumed as contraceptive substance for men.

**Keywords :** the cell association number, the spermatosit number, the spermatid number, the infuse concentration.

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### INTRODUCTION

Katu (*Sauropus androgynus*, Merr) is a herb belonging to the family Euphorbiaceae. The leaves of this plant are use as herbal medication for fever, franbosia, ulcer, venereal diseaces, influence breast milk production and consumed as vegetable and to colour of food (Heyne K, 1987, Soedarman and Harsono, 1968).

Katu leaves contain steroid substances (Pradjonggo, 1983). Steroid substances in blood causes inhibids indirectly hyphotalamus activity and inhibids secretion of GnRH (Evan, RM, 1988). Steroid substances will gives negative feedback action and inhibids secretion of gonatropin hormone (Wade, et al, 1996).

Reduction of GnRH in the blood from hypothalamus causes inhibids FSH and LH secretion from pituitary gland, resulting in the disruption of spermatogenesis proses (Wignjosastro, 1997). Based on these facts, we want to investigation to the effect of infuse katu leaves to spermatogenesis process in tubules seminifefous testis of mice, especially on the cell association number, spermatosit number, and spermatid number. Wether these are correlation between increases of infuse consentration and inhibits spermatogenesis in its testis.

### MATERIALS AND METHODS

This research was conducted at the Labolatory of reproduction Biology, Faculty of Sain and Tecnology, Airlangga University, Surabaya.

Meterial consist of infuse katu leaves and 60 male mice of 8 weeks old with 20 – 30 grams body weight, were devided into six groups, i.e. control group were given 0.5 cc per oral per day aquadest; P1 were given 0,5 cc per oral per day 5% infuse; P2 were given 0.5 cc per oral per day 10% infuse; P3 were given 0,5 cc per oral per day 15% infuse; P4 were given 0.5 cc per oral per day 20% infuse, P5 were given 0.5 cc per oral per day 25%

infuse. Treatment was carried out for 35 days. The testis were removed to examine the structure of the histological tubules seminiferous of the testis.

Data were obtained by enumerating the number of cell association, spermatosit, and spermatid in testis seminiferous tubules of mice from controle and each treatment groups. Data were analyzed was continued with Duncan Test (Duncan Multiple Range Test).

## RESULTS

The experiment dates before of anove test, we make of normal distribution test with " One Sampel Kolmogorof – Smirov Test ". The results symp sig test more than 0.60, so the normal distribution test so we can do anova test. Base on the anove test of the date there are different of cell association number in tubules seminiferous on any threatment groups see table 1 and 2.

**Table 1. The result anove test of different cell association number in seminiferous tubules for any threatment and controle**

Source	Sum Square	df	Mean Square	F	Sig
Corrected Model	1238.908	5	247.782	98.615	0.000
Intêrcept	1811.702	1	1811.702	721.043	0.000
Treatment	1238.908	5	247.782	98.615	0.000
Error	135.681	54	2.513	-	-
Total	3186.290	60	-	-	-
Corrected total	1374.589	59	-	-	-

**Table 2. The date of the influence of infuse katu leaves which defferent of mean cell association number**

No	Threatment	Mean of cell association number
1	Control	14.72±3.54
2	P1 5%	7.24±0.80
3	P2 10%	4.77±0.70
4	P3 15%	2.46±0.85
5	P4 20%	1.98±0.77
6	P5 25%	1.80±0.27

Base on the anove test of the date there are different of spermatocyte number in seminiferous tubules on any threatment groups see table 3 and 4.

**Table 3. The result anove test of different spermatocyte number in seminiferous tubules for any threatment and controle**

Source	Sum Square	df	Mean Square	F	Sig
Corrected Model	1302.163	5	260.433	82.067	0.000
Intercept	12229.393	1	12229.353	3853.710	0.000
Treatment	1302.163	5	260.433	82.067	0.000
Error	171.364	54	3.173	-	-
Total	13702.920	60	=	=	=
Corrected total	1473.527	59	-	-	-

**Table 4. The date of the influence of infuse katu leaves which defferent of mean spermatocyte number.**

No	Threatment	Mean of cell association number
1	Control	22.72±2,74
2	P1 5%	17.08±1,63
3	P2 10%	14.48±1,32
4	P3 15%	12.44±1,58
5	P4 20%	10.32±1,03
6	P5 25%	8.62±1,29

Base on the anove test of the date there are different of spermatid number in tubules seminiferous on any threatment groups see table 5 and 6.

Table 5. The result anove test of different spermatid number in seminiferous tubules for any threatment and control

Source	Sum Square	df	Mean Square	F	Sig
Corrected Model	1382.203	5	76.441	5.714	0.000
Intercept	10864.913	1	10864.913	812.202	0.000
Treatment	382.203	5	76.441	5.714	0.000
Error	722.364	54	13.377	-	-
Total	11969.480	60	-	-	-
Corrected total	11104.567	59	-	-	-

Table 6. The date of the influence of infuse katu leaves which defferent of mean spermatid number.

No	Threatment	Mean of cell association number
1	Control	15.94±4.71
2	P1 5%	15.66±2,76
3	P2 10%	15.22±4.62
4	P3 15%	13.89±2.23
5	P4 20%	10.40±3.88
6	P5 25%	9.64±2.89

## DISCUSSION

The result of the experiment are followings:

1. Based on anova test, the number of cell association in testis seminiferous tubules between groups of control, P1, P2, P3, P4, and P5 was very significantly different on level 95% ( $p = 0.00 < 0.05$ ). But the number of cell association of P3, P4, and P5 groups were not significantly different on 95% ( $p = 0.00 < 0.05$ ) from one another by Duncan's test, but all of the groups significantly different toward control group, P1, and P2 groups. Beside of those results, it was found that the number of cell association on control groups, P1, and P2 groups were significantly different on level of significant 95% ( $p = 0.00 < 0.05$ ).
2. There were high correlation between the number of cell association toward the increase of infuse katu concentration were treated to mice by index correlation  $0.843 > 0.600$ .
3. These were significant difference the spermatosit number in testis seminiferous tubules of mice between all groups on level of significant 95% ( $p = 0.00 < 0.05$ ).
4. There were correlation between the spermatosit number in testis seminiferous tubules of mice toward the increase of infuse concentration were treated to mice in any groups by index correlation ( $r$ )  $0.914 > 0.600$ .
5. The different of the spermatid number in testis seminiferous tubules of mice between control group, P1, P2, and P3 were not significant; in such a manner for P1 to P2, P2 to P3, not significant on level of significant 95% ( $p = 0.00 < 0.05$ ). but spermatid number in control group, P1, P2, and P3 were different toward the spermatid number in P4 and P5 groups on level of significant 95% ( $p = 0.00 < 0.05$ ).
6. There were light correlation between the spermetid number in tubules seminiferous toward the increases of infuse concentration were treated to mice in any groups by index correlation ( $r$ )  $0.553 < 0.60$ .
7. There were high correlation between cell association number toward spermatosit number in testis seminiferous tubules of mice by index correlation  $0.839 > 0.60$ .
8. There were light correlation between the cell association number toward the spermatid number in testis seminiferous tubules of mice by index correlation ( $r$ )  $0.408 < 0.60$ .
9. There were light correlation between spermatid number toward the spermatid number in testis seminiferous tubules of mice by index correlation ( $r$ )  $0.490 < 0.60$ .

## CONCLUSION

The conclusion of this experiment are followings:

1. The infuse of *Sauropus androgynus* leaves affected to decreases of the cell association number in testis seminiferous tubules of mice which treated 0.5 cc infuse per oral per day.
2. The heightening of thr infuse concentration of *Sauropus amdogynus* leaves were treated 0.5 cc infuse per oral per day, caused decreases of cell association number in testis seminiferous tubules of mice.
3. The infuse of *Sauropus androgynus* leaves affected to decreases of spermatosit number in testis seminiferous tubules of mice which treated 0.5 cc infuse per oral per day.
4. The heightening of the infuse consentration of *Saouropus androgynus* leaves were treated 0.5 cc infuse per oral per day, caused decreases of the spermatosit number in testis seminiferous tubules of mice.
5. The infuse of sauropus andorynus leaves affected to decreases of the spermatid number in testis seminiferous tubules of mice.
6. The heightening of the infuse consentration were treated to the male mice, caused to decreases of the spermatid number in testis seminiferous tubules.

## SUGGESTION

Based on the results, we suggest that if the infuse of *Saouropus andogynus* leaves will be consumed as contraceptive substance for men, there are studies should be conducted about:

1. Optimum dose of *Sauropus andogynus* leaves for men
2. Infuse dose of *Sauropus amdrogynus* leaves which has reversibile effect to the spermatogenesis procces for men.

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**SUPPLEMENTARY MATERIALS**

The following figures were the cross section structure of testis seminiferous tubules of mice to controlle group and treatment P1, P2, and P3

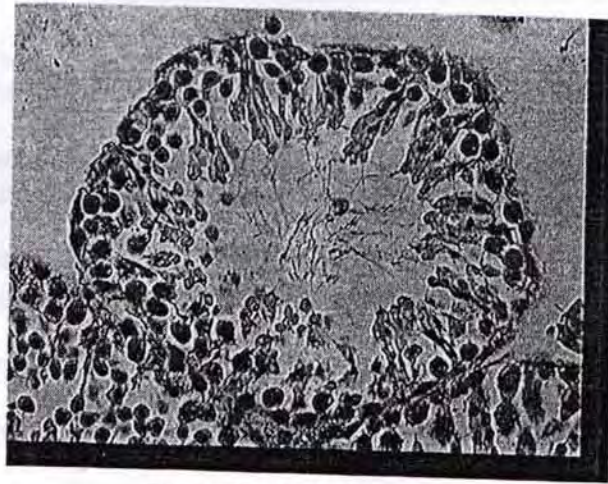


Figure 1. Control group

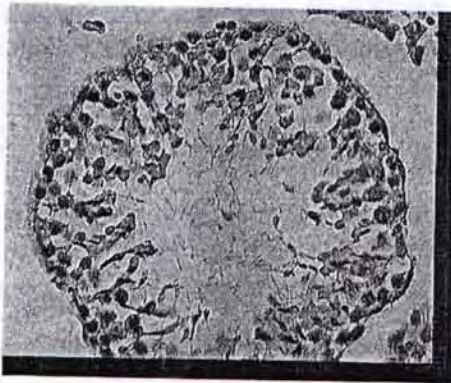


Figure 2. P1 group

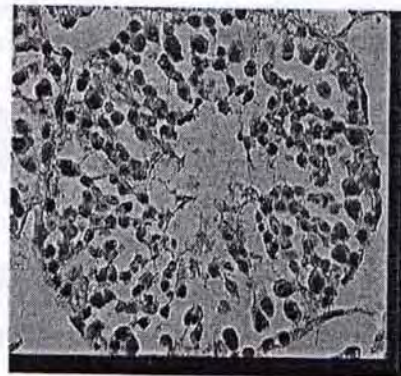


Figure 3. P2 group

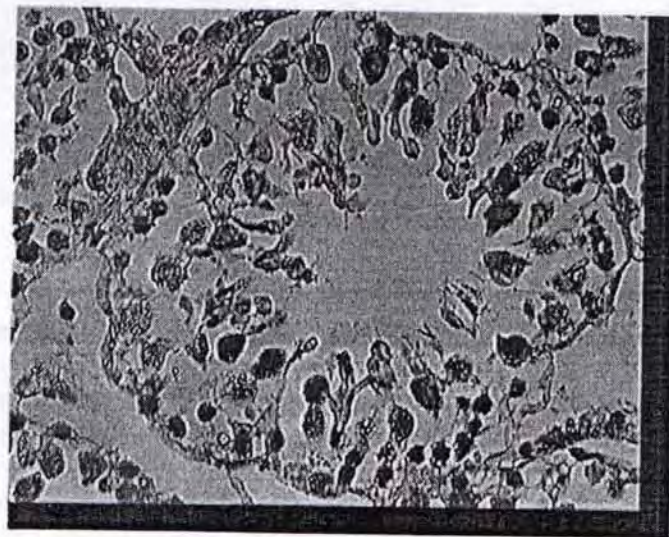


Figure 3. P3 group