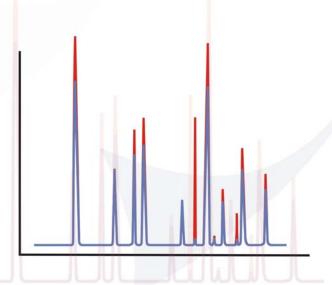


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FOREWORD

The International Conferences on Natural and Material Sciences 2009 (NAMES09) was conducted on the 3rd and 4th of July 2009 in Banjarmasin, Indonesia. The aim of the conference was to initiate international network of scientific collaboration in research and education of natural and material sciences. The conference was attended by 68 active participants that discussing diverse issues of natural and material sciences including Physics, Material and Chemistry, Applied Mathematics, Biology, Pharmacy, and Natural Products. In addition, 16 posters of research results on the topics were exhibited.

Editor

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THE EFFECTS OF EXTRACT Piper retrofractum Vahl EXPOSURE TO THE QUALITY OF SPERMATOGENESIS MICE (Mus musculus L) SWISS WEBSTER

Yuanita Windusari⁽¹⁾ and Arum Setiawan⁽²⁾

(1)&(2) Biology Department, Mathematic and Natural Sciences Faculty of Sriwijaya University

The research aims is studying the effects of extract Piper retrofractum Vahl exposure to the quality of spermatogenesis mice (Mus musculus L) Swiss Webster. This research has been done on June until December 2006 at Physiology laboratory, Department of Biology, Sriwijaya University. It was design using the Complete Randomized test at 5% rate of precision, then continue with Duncan's Multiple Range Test. There are four groups of mice with different treatment and each treatment was replicated 6 times. They were control by giving aquadest, treatment by giving a dosage of extract 0,25 mg/g bodyweight (bw), 0,33 mg/g bw, dan 0,50 mg/g bw. Extract was given at a volume 0,1 ml/10g bw and administrated by oral during 34 days. The result showed that extract of P retrofractum Vahl caused increase of spermatogonia average, spermatogenesis and increase quality of spermatozoon morfology, progressive motility speed, viability and progressive motility of spermatozoon.

Keywords: Piper retrofractum Vahl, spermatogenesis



THE EFFECTS EXPOSURE OF EXTRACT Piper retrofractum Vahl TO THE QUALITY OF SPERMATOGENESIS MICE (Mus musculus L) SWISS WEFESTER

Yuanita Windusari⁽¹⁾ and Arum Setiawan⁽²⁾ (1)A(2) Biology Department, Mathematic and Natural Sciences Faculty of Srivilara University

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Keyword: Piper retrefraction Fahl, spermatogenesis

INTRODUCTION

Traditional medicine has been applied by public is full fire episomene of them. Deploying of realization medicine in general more majored as step of preventive, hough them is also office as therepy a disease. The exclamation remises to materin (whi, to study how his increased traditional medicine popularity). Usage of finite medicineal medicine has been or experience remain done intuitionally and an other hosts done increased traditionally and first that usage of medicine done not generate regarder effects and one increased between the contributional position of the study of medicine done not generate regarder effects and one increase of the study of medicine discussion of the production of the study of medicine discussion of generate regarder effects and one increased the study of the study to the study of the s

One of traditional modicine elevalating in public is special stamina adder drug for man. This modicine contains marterial known as approximace, is working in hormonal and also neohormonal. Aphrodisiae can be interpreted as drug or matter which can stimulate and increases ability of sexuality. ⁶⁷ One of traditional medicinal having special quality as aphrodisiae is calle also are "proper reprofusemental".



P-zetrofractum Vahl is one of drug crop type which many applied by Indonesian people. P-zetrofractum Vahl included is the big ten of simplistic absorbent vegetation by traditional medicine industry, and occupies sixth rank or 95% from total simplistic consumed by inscribed has traditional medicine industry in Indonesia.

The first and rost of this plant containing piperine and composed having the character of advergation, Echinector of piperine, in nature equal to SPA, there is at every Persenframen Vald, , on that Persenframen Vald is source of a real potential traditional aphrodition drop new material ⁽¹⁾. Effect androgenic and nanholic first of Persenframen Vald like piperine and essential oils contained from family Pipersone to require further research ⁽²⁾. This research done to know extract influence Persenframen Vald to make secure dropped flow movement.

METHODS

This research executed in Jane- Documber 2006 at Animal Physiology Laboratory, Department of Biology, Multi-mutics and Nineai Sciences Faculty, University Stroligo, Marierial applied in 45 mice (Ahren search at 15 mice)).

Equipment applied is keeping eage of treat animal, disposable syringe 1 ml, dissection equipment, and photomicrography, equipment of making of paraffin method, flacon bottle, staining jur, but plate, hemocytometer Neuter, stop watch, hand counter, spotting pipette, and light microscope.

Steps of research: 1. Preparation of test animal

Before given by treat white mouse is acclamation during I week with given by pellet and water. One day before treatment, white mouse is fasted. 2. Extraction

2. Extraction

Petrophysicism Vahl is dried with sunshine indirectly, in blender and sieved with sieve 15 - 20 mesh. Extraction 540 g powder with ethanol 96 % 1500 cc applies mixer during 30 minutes. Result of extraction is macronic by during 24 hours.

dissociated the residue and filtrate by using Buchner funnel. Filtrate obtained packed into evaporator 40-50°C. Extract yielded thinned by using aquadest at retail 50 % (4),

White mouse is grouped according to various extract doses. Based on treatment various dose is divided to become 4 group of with 6 restating. Treatment time depth is 31 days. Treatment dose at each group, that is group 1 (control), group II (0.25 mg/g bb), group. III (0.33 mg/g bb), group IV (0.50 mg/g bb). Extract is given every day 0, 1 and sing disconable servings ¹⁰.

4. Making of preparation and observation

Mice tested, fainted by using chloroform and cut open to be taken the testis organ and epididymis.

Spermatogenesis

Testis made preparation of silon with parelfilm method and painting by united Homatocylin Eosin. From every testis made three sectors. Every sector is selected 10 best silens. Each preparation is selected by 10 structure of labelus semioiflems at random. Counted the spermatagenic cells consisted permatagenia, primary spermatocyte cell, secondary spermatocyte cell, and spermatid cell. Observation is show with hesticular magnification 450 times.

b. Quality of spermatozon

Spermatorea from caudal epididymis, made sperm suspension with 1 ml condensation with temperature physiological solution 37-40°C. Parameter observed covers normal spermatoroa morphology, speed of progressive motility of spermatoroa, spermatoroa viability, and progressive motility of spermatoroa.

Normal merphology: quern suspension disposed at object gains the preparation with wholge methods and painted with German No. Out of 100 sports salls, subclasted sporm personage having normal morphology using hard counter. Paper of preparation modelly: Sports supposed no depend and counter, such categories and provide provide

Spermatocoa violility: sperm dripped at object glass and preparation with wiping methods and the coloration with Giensa 3%. Out of 100 spermatocoa, calculated alive sperm percentage (noncolourize) and dead control of the property of the coloration of the coloratio

Progressive motility: sperm suspension dripped at haemocytometer calculate Neubeur rooms. Out of 100 sperms, calculated percentage having good motility by using hand counter.

5. Makine of Photograph Preparation

Documentation is done by using equipment of photomicrography with ventricular magnification 10 x 10 and 10 x 40. For photograph, selected preparation representative from every group.

6. Data Analyses

Data obtained in the form of qualitative data and quantitative. Quantitative data is calculated to applies test ANOVA and continued [by] continuation test in the form of test DMRT (Duncan's Multiple Range Test)

RESULT AND DISCUSSION

Observation to energyatorous

Tables I. Giving influence of extract P. retrofraction Vahl during 34 days by gavage for average of spermatogonia (Max musculus L) Swiss Webster.

reatment (mg/g bb)	Averange of spermatogonia
Control	60,33 ± 8,18 a
0,25	61,67 ± 3,25 a
0,33	67,83 ± 3,29 ab
0.50	86.33 ± 4.50 hc

Tables is showed that real difference between group of controls with group of dose 0,50 majg bb, and between group of doses 0,25 majg bb and 0,35 mg/s bb with group given dose 0,50 mg/s; bb. Increasing of dose because increase number of average spermategonia and has not seen the happening of degradation. So inferential that cattact makes positive influence to improvement of average number portunitegonia. In partial increases does not included causes unnel or darket matter. which implied in extract is coming into body more and more. Thereby available enough material which can be utilized as trigger and proliferation contributor of cell and growth and development of spermatogonia becomes more effective.

Observation to spermatocyte

Table 2. Giving influence of extract P.retrofractum Vahl during 34 days by gavage for average of spermatocyte (Mas musculus L) Swiss Webster

	rreaument (mg/g co)	Averange of spermatosic	
	Control	73,17 ± 7,60 a	
	0,25	75,33 ± 4,71 a	
	0,33	86,83 ± 3,62 b	
	0,50	106,33 ± 4,11 c	
At visible	tables that at control the	re are no real difference compared to group	of

dose 0.25 mg/ bit. While between groups of controls with group of dose 0.50 mg/g bit, there is reality difference. Improvement of number of spermatocytes in bubbles consoliforous because of outer matter which implied in extract which is estimable on increases mechanism of hormonal through process hipotalemus-hipotisis-tensis with gendotropic product increase. Consolitorpis hormone that is FSII and LII has a real important role in development of city of process.

Observation to spermat

Table 3. Giving influence of piperine from extract P.retrofructum Vahl during 34 days by gavage for average of spermatic (Max musculus L.) Swiss

Treatment (mg/g bb)	Averange of spermatid
Control	127,83 ± 5,75 a
0,25	128,67 ± 9,79 a
0.33	136.67 ± 4.27 a

157.83 + 5.52 h

Giving of dose 0,50 mg/g bb increases number of average of spermatic compared to control dose, 0,25 mg/g bb and 0,33 mg/g bb. Improvement of number of spermatic

in tubules somifitrous because of active matter which implied in extract which is estimable influences cell Storei activity under stifuence FSH to produce androgen bluding protein (AIPF) functioning to instinatorous, have on applied to increase growth and development, and looks after structure and function of basal cells in tubules somificiences ⁽¹⁾

Observation to cells spermatopenia

Table 4. Giving influence of extract P.retrofractum Vahl during 34 days by gavage for spermatogenic cells (Man musculus L) Swiss Webster.

rreaument (mg/g oo)	Averange spermatogenic cens
Control	276,17 ± 39,73 a
0,25	284,33 ± 28,00 a
0,33	319,83 ± 20,39 a
0,50	393,17 ± 8,47 b

Table down the difference between groups of controls with group of down tab Jung's he Result from softwares which has been down preven the centract can increase marker of crist associations operatinguic programsive). This is multipaid influenced by solid responsed content at extract causing looks after of shades sometimess, cell Servici, cell Leydig, and function of used cells, causing increase spreamagement efficiences. The difference having a measing between structures limiting trialized sometimes, network intentiated and clusteress of searching of segmentage cards counter whereast. Some that furnished or effect of the control of the control of the control of the entire control of the control of the control of the entire control of the control of the control of the previous control of the control of the search of the control of the control of the processing and the control of processing can be say that of previous control of the control of previous control of

Observation to morphology of sperm

Table 5. Giving influence of extract P.retrofractum Vahl during 34 days by gavage for percentage normal morphology of spermatozoa (Mus musculus L)

Treatment (mg/g bb)	Morfology of spermatozoa (%)
Control	77,17 ± 3,44 a
0,25	81,50 ± 2,06 b
0,33	83,17 ± 2,27 bc
0,5	86,33 ± 1,49 c

Doe 0.53 mg/ ht gives low offictions in imprevenent of normal sprematures reproduce presenting lightest influence is lossed by rapor of does 0.50 mg/y ht. In increasing around sprematures morphology set mice, matter which implied in cuttered influency by the way of increasing sprematagenesis affectively, Antiquied cuttered influency by the way of increasing a prompting community in responsible transferance of imprevenent of promising profession affectively. With enhance of imprevenent of promising profession affectively. With enhance of imprevenent of promising profession profession affectively in the profession of influence of imprevenent of promising profession and in the internet. The matter works by the way of influencing protein symbolics are seed cell for the agenda of nettomorpholosis for the part of recommitgenents also (s).

Observation to progressive motility of spermatozoa

Table 6. Giving influence of extract P.retrofractum Vahl during 34 days by gavage for progressive motility of spermatoroa (Mas musculus L.) Swiss Webster.

Rate of progressive motility of spermatozoa (%) 110.50± 2.81 a
138,83 ± 4,41 b
162,83± 5,05 c
243,83± 7,36 d

Dose 0,25 mg/g bb gives low influence in improvement percentage of normal spermatozoa morphology. Dose 0,33 mg/g bb shows real influence compared to dose 0.25 mg/g bb. The same as to doze 0,50 mg/g bb shows real influence with doze 0,33 mg/g bb. Improvement of spermatoroa modified with progressive motion is anticipated because of deminity matter which implied in centra assisting energy facility essential to spend of spermatoroa. Spend of spermatoroa motility depend on movement of all, whereas movement of spermatoroa tail depend on availability of energy from ATP deconognision."

Observation to spermatopoa viabili

Table 7. Giving influence of extract P-retrofractum Vahl during 34 days by gavage for percentage viability of spermatozoa (Mus musculus) Swiss Webster.

rieannent (mg/g co)	viacuity or spermatozou (74)
Control	86,50 ± 2,06 a
0,25	89,67 ± 1,11 b
0,33	91,83 ± 1,57 b
0,5	94,67 ± 1,80 c

A solor is indicated the significance of inflament average of normal operations in proprieting presenting responsed to group of caused. One 425 may fit before two inflament in Improvement of one 750 may in these solid representation merophology processing a formal operations on morphology processing a formal programmation of the proprieting of the object of the processing of the object of the proprieting of the object of the proprieting of the object of the programmation of the processing of members are a promotion of the processing of members of the processing of the object of the processing of the object of t

Observation to progressive motility of spermatoroa

Table 8. Giving influence of extract P-retrofractum Vahl during 34 days by gavage for progressive motility percentage of spermatogonia (Mus musculur L) Swiss Webster

	Treatment (mg/g bb)	Progress motility of spermatozoa (%)
- 1	Control	78,67± 1,97 a
	0,25	82,00± 1,29 b
-	0,33	83,83 ± 1,86 b
- 1	0,5	86,83± 1,86 c

Doe 023 mg/g to a little influence to improvement of normal operational morphology powering. Improvement of does 0.71 mg/g to shows different influence supplied to the cold of the cold o

CONCLUSION

Based on result of research hence inferential that exposure of extract Piper retrofractum Vahl to male mice sexual organ (Mus musculus L.) Swiss Webster

- Improvement average numbers of spermatogonia, spermatocyte, spermatide, and spermatogenic cells, and increases closeness of association of cells spermatogenic.
- Improvement number of normal spermatozoa morphologies, rate of progressive motility of spermatozoa, and viability of spermatozoa.

 Increasing of dose extract cause increase of spermatogenesis effectiveness, quality of spermatozoa, especially dose 0,50 mg/g bb compared to control and the other of group.

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THE EFFECTS OF EXTRACT Piper retrofractum Vahl EXPOSURE TO THE QUALITY OF SPERMATOGENESIS MICE (Mus musculus L) SWISS WEBSTER

By Arum Setiawan



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Yuanita Windusari(1) and Arum Setiawan(2)

(1)&(2) Biology Department, Mathematic and Natural Sciences Faculty of Sriwijaya
University

The research aims is studying the effects exposure of extract Piper retrofractum Vahl exposure to the quality of spermatogenesis mice (Mus musculus L) Swiss Webster. This research has been done on June until December 2006 at Physiology laboratory, Department of Biology, Sriwijaya University. It was design using the Complete Randomized test at 5% rate of precision, and then continues with Duncan's Multiple Range Test. There are four groups of mice with different treatment and each treatment was replicated 6 times. They were control by giving aquadest, treatment by giving a dosage of extract 0.25 mg/g bodyweight (bw), 0,33 mg/g bw, dan 0,50 mg/g bw. Extract was given at a volume 0,1 ml/10g bw and administrated by oral during 34 days. The result showed that extract of P retrofractum Vahl caused increase of spermatogonia average, spermatogenesis and increase quality of spermatozoon morfology, progressive motility speed, viability and progressive motility of spermatozoon.

Keywords: Piper retrofractum Vahl, spermatogenesis

INTRODUCTION

Traditional medicine has been applied by public to fulfill requirement of health. Exploiting of traditional medicine in general more majored as step or preventive, though there is also effort as therapy a disease. The exclamation returns to nature (back to nature) has increased traditional medicine popularity. Usage of finite traditional medicine is based on experience result done traditionally and has not been based on circumspect research result. This thing claims doing of effort that usage of traditional medicine does not generate negative effect and can increase public health level. Scientific evidence about special quality, security and safety and quality of tradisional medicine must be affirmed forthe shake of well guaranteed of benefit clinic expected.

One of traditional medicine circulating in public is special stamina adder drug for man. This medicine contains material known as aphrodisiac, is working in hormonal and also nonhormonal. Aphrodisiac can be interpreted as drug or matter which can stimulate and increases ability of sexuality⁽¹⁾. One of traditional medicine having special quality as aphrodisiac is cabe Jawa or *Piper retrofractum* Vahl.

P.retrofractum Vahl is one of drug crop type which many applied by Indonesian people. P.retrofractum Vahl included is the big ten of simplistic absorbent vegetation by traditional medicine industry, and occupies sixth rank or 95% from total simplistic consumed by inscribed has traditional medicine industry in Indonesia.

The fruit and root of this plant containing piperine and compound having the character of androgenic. Existence of piperine in nature equal to 93% there is at crop *P. retrofractum* Vahl, so that *P. retrofractum* Vahl is source of a real potential traditional aphrodisiac drug raw material ⁽²⁾. Effect androgenic and anabolic fruit of *P. retrofractum* Vahl like piperine and essential oils contained from family Piperaceae to require further research⁽³⁾. This research done to know extract influence *P. retrofractum* Vahl to male sexual organ (*Mus musculus* L).

METHODS

This research executed in June – Desember 2006 at Animal Physiology Laboratory. Department of Biology, Mathematics and Natural Sciences Faculty, University Sriwijaya. Material applied is 48 mice (Mus musculus L) Swiss Webster, have never marries, age 2 month, weighing 25 - 30 g, pellet Par G for feed of mice, fruit of P.retrofractum Vahl, chloroform. Bouin's solution, absolute alcohol, alcohol 96% aquadest, physiological salt Mayer's albumin, Hematoxylin-Eosin, toluol, xylol, Canada balsam, and colourant giemsa.

Equipment applied is keeping cage of treat animal. disposable syringe 1 ml. dissection equipment, and photomicrography. equipment of making of paraffin method. flacon bottle, staining jar, hot plate, hemocyometer Neuter, stop watch, hand counter, spotting pipette, and light microscope.

Steps of research:

1. Preparation of test animal

Before given by treat white mouse is acclamation during I week with given by pellet and water. One day before treatment, whice mouse is fasted.

2. Extraction

P. retrofractum Vahl is dried with sunshine indirectly, in blender and sieved with sieve 15 - 20 mesh Extraction 540 g powder with ethanol 96 % 1500 cc applies mixer during 30 minutes. Result of extraction is macerate by during 24 hours,

dissociated the residue and filtrate by using Buchner funnel. Filtrate obtained packed into evaporator $40-50^{\circ}$ C. Extract yielded thinned by using aquadest at retail 50% ⁽⁴⁾.

3. Treatment

White mouse is grouped according to various extract doses. Based on treatment various dose is divided to become 4 group of with 6 restating. Treatment time depth is 34 days. Treatment dose at each group, that is group I (control), group II (0,25 mg/g bb), group III (0,33 mg/g bb), group IV (0,50 mg/g bb). Extract is given every day 0,1 ml using disposable syringe⁽⁵⁾.

4. Making of preparation and observation

Mice tested, fainted by using chloroform and cut open to be taken the testis organ and epididymis.

a. Spermatogenesis

Tes.tis made preparation of slice with paraffin method and painting by using Hematoxylin Eosin. From every testis made three sectors. Every sector is selected 10 best slices. Each preparation is selected by 10 structure of tubulus seminiferus at random. Counted the spennatogenic cells consisted spermatogonia, primary spermatocyte cell, secondary spermatocyte cell and spermatid cell. Observation is done with lenticular magnification 450 times.

Quality of spermatozoa

Spermatozoa from caudal cpididymis, made sperm suspension with 1 ml condensation with temperature physiological solution 37 - 40°C. Parameter observed covers normal spermatozoa morphology, speed of progresive motility of spermatozoa, spermatozoa viability, and progressive motility of spermatozoa. Normal morphology, sperm suspension dripped at object glass the preparation with wiping methods and painted with Giemsa 3%. Out of I 00 sperm tails, calculated sperm percentage having normal morphology using hand counter. Speed of progressive motilty: Sperm suspensions dripped at haemocytometer calculate room Neubeur. Speed moved sperm is measured with calculating how much time required getting through two sides haemocytometer square. Set of speed expressed in μm/second. Sperm calculated is having progressive motion.

spermatozoa viability, sperm dripped at object glass and preparation with wiping methods and the coloration with Giemsa 3%. Out of 100 spermatozoa, calculated alive sperm percentage (noncolourize) and dead sperm (red color)⁽⁶⁾.

Progressive motility: sperm suspension dripped at haemocytometer calculate Neubeur rooms. Out of 100 sperms, calculated percentage having good motility by using hand counter.

5. Making of Photograph Preparation

Documentation is done by using equipment of photomicrography with ventriculer magnification 10×10 and 10×40 . For photograph, selected preparation representative from every group.

6. Data Analyses

Data obtained in the form or qualitative data and quantitative. Quantitative data is calculated to applies test ANOVA and continued [by] continuation test in the form of test DMRT (Duncan's Multiple Range Test)

RESULT AND DISCUSSION

Observation to spermatogonia

Tables I. Giving influence of extract P. retrofractum Vahl during 34 days by gavage for average of spermatogonia (*Mus musculus L.*) Swiss Webster.

Averange of spermatogonia
60,33 ± 8,18 a
61,67 ± 3,25 a
67,83 ± 3,29 ab
86,33 ± 4,50 bc

Tables is showed that real difference between group of controls with group of dose 0,50 mg/g bb, and between group or doses 0,25 mg/g bb and 0,33 mg/g bb with group given dose 0,50 mg/g bb. Increasing of dose because increase number of average spermatogonia and has not seen the happening of degradation. So inferential that extract makes positive influence to improvement of average number spermatogonia. In parallel increases dose anticipated causes number of active matters

which implied in extract is coming into body more and more. Thereby available enough material which can be utilized as trigger and proliferation contributor of cell and growth and development of spermatogonia becomes more effective.

Observation to spermatocyte

Table 2. Giving influence of extract *P. retrofractum* Vahl during 34 days by gavage for average of spermatocyte (*Mus musculus* L.) Swiss Webster.

Treatment (mg/g bb)	Averange of spermatosit
Control	73,17 ± 7,60 a
0,25	75,33 ± 4,71 a
0,33	86,83 ± 3,62 b
0,55	$106,33 \pm 4,11$ c

At visible tables that at control there are no real difference compared to group of dose 0,25 mg/g bb. While betweenn groups of controls with group of dose 0,50 mg/g bb, there is reality difference. Improvement of number of spermatocytes in tubules somniferous because or active matter which implied in extract which is estimable can increase mechanism of hormonal through process hipotalamus-hipofisis-testis with gonadotropin product increase. Gonadotropin hormone that is FSH and LH has e real important role in development of cell spermatogenic⁽⁷⁾.

Observation to spermatic

Table 3. Giving influence of piperine from extract *P.retrofractum* Vahl during 34 days by gavage for average of spermatic (*Mus musculus* L.) Swiss Webster.

Treatment (mg/g bb)	Averange of spermatid			
Control	73,17 ± 7,60 a			
0,25	75,33 ± 4,71 a			
0,33	86,83 ± 3,62 b			
0,50	$106,33 \pm 4,11$ c			

Giving of dose 0,50 mg/g bb increases number of average of spermatic compared to control dosen 0,25 mg/g bb and 0,33 mg/g bb, Improvement of number of spermatic

in tubules somniferous because of active matter which implied in extract which is estimable influences cell Sterol activity under influence FSH to produce androgen binding protein (ABP) functioning to testosterone, later on applied to increase growth and development, and looks after structure ond function or basal cells in tubules somniferous⁽⁸⁾.

Observation to cells spermatogenic

Table 4. Giving influence of extract *P.retrofractum* Vahl during 34 days by gavage for spermatogenic cells (*Mus musculus* L.) Swiss Webster.

Treatment (mg/g bb)	Averange of spermagenic cells
Control	276,17 ± 39,73 a
0,25	284,33 ± 28,00 a
0,33	319,83 ± 20,39 a
0,50	393,17 ± 8,47 b

Table shows the difference between groups of controls with group of dose 0,50 mg/g bb. Result from observation which has been done proves that extract can increase number of cells associations spermatogenic progressively. This is anticipated influenced by active compound content at extract causing looks after of tubules somniferous, cell Sertoli, cell Leydig, and function of seed cells, causing can increases spermatogenesis effectiveness. The difference having a meaning between structures histology tubules somniferous, network interstitial and closeness of association spermatogenic cells control with treatment. Seen that formation of cells spermatogenic is each other squeeze one another but not overlap, this mean of the cells connected by cytoplasm bridge. Cytoplasm bridge stands in transfer of information between cells in coordination system of spermatogenesis. This is showed that normal spermatogenesis after giving of extract, causing can be says that extract influential reality to spermatogenesis. The increasing of association amounts of spermatogenic cells is caused to increases the association of cells spermatogenic where this closeness tends to increase along with increasing of dose.

Observation to morphology of sperm

Table 5. Giving influence of extract *P.retrofractum* Vahl during 34 days by gavage for percentage normal morphology of spermatozoa (*Mus musculus* L.) Swiss Webster.

Treatment (mg/g bb)	Morfology of spermatozoa (%)
Control	77,17 ± 3,44 a
0,25	81,50 ± 2,06 b
0,33	83,17 ± 2,27 bc
0,5	86,33 ± 1,49 c

Dose 0.25 mg/g bb gives low influence in improvement of normal spermatozoa. morphology percentage. Highest influence is showed by group of dose 0.50 mg/g bb. In increasing normal spermatozoa morphology at mice, matter which implied in extract indirectly by the way of increasing spermatogenesis affectivity. Anticipated effect androgenic and anabolic happened when consuming *P.retrofractum* Vahl to cause improvement of spermatogenesis affectivity. With existence of improvement of spermatogenesis effectivity, hence quality of spermatozoa also will increase. The matter works by the way of influencing protein synthesis at seed cells for the agenda of metamorphosis to form part of normal spermatozoa body.

Observation to progressive motility of spermatozoa

Table 6. Giving influence of extract *P.retrofractum* Vahl during 34 days by gavage for progressive motility of spermatozoa (*Mus musculus* L.) Swiss Webster.

Treatment (mg/g bb)	Rate of progressive motility of spermatozoa (%)
Control	110,50 ± 2,81 a
0,25	138,83 ± 4,41 b
0,33	162,83 ± 5,05 c
0,5	243,83 ± 7,36 d

Dose 0,25 mg/g bb gives low influence in improvement percentage of normal spermatozoa morphology. Dose 0,33 mg/g bb shows real influence compared to dose

0,25 mg/g bb. The same asto dose 0,50 mg/g bb shows real influence with dose 0,33 mg/g bb. Improvement of spermatozoa motility with progressive motion is anticipated because of chemistry matter which implied in extract assisting energy facility essential to speed of spermatozoa. Speed of spermatozoa motility depend on movement of tail, whereas movement or spermatozoa tail depend on availability of energy from ATP decomposition⁽¹⁰⁾.

Observation to spermatozoa viability

Table 7. Giving influence of extract *P.retrofractum* Vahl during 34 days by gavage for progressive motility of spermatozoa (*Mus musculus* L.) Swiss Webster.

Treatment (mg/g bb)	Viability of spermatozoa (%)		
Control	86,50 ± 2,06 a		
0,25	89,67 ± 1,11 b		
0,33	91,83 ± 1,57 b		
0,5	$94,67 \pm 1,80$ c		

A table is indicated that significance of influence avarage of normal spermatozoa morphology percentage compared group of control. Dose 0,25 mg/g bb gives low infuence in improvement of normal spermatozoa morphology percentage. Improvement of dose 0,33 mg/g bb shows different influence not real compared 10 dose 0,25 mg/g bb and dose 0,50 mg/g bb shows real influence with dose 0,33 mg/g bb. Improvement of spermatozoa viability percentage because of content standing in arranging spermatozoa membrane permeability. Expressing of membrane permeability of spermatozoa closely related with spermatozoa viability influencing transportation of nutrition for the life endurance⁽¹¹⁾. Besides also, usage of extract causes the happening of addition progesterone from outside body which will be synthesis so that is formed androgen. Increasing of androgen means increasing testosterone rate followed with dilution product increase of prostate. Dilution of these prostate functions to protect spermatozoa from area that is not profits causing can increase spermatozoa viability⁽¹²⁾.

Observation to progress motility of spermatozoa

Table 7. Giving influence of extract *P.retrofractum* Vahl during 34 days by gavage for progressive motility percentage of spermatogonia (*Mus musculus* L.) Swiss Webster.

Treatment (mg/g bb)	Progress motility of spermatozoa (%)		
Control	$78,67 \pm 1,97 \text{ a}$		
0,25	$82,00 \pm 1,29 \text{ b}$		
0,33	83,83 ± 1,86 b		
0,5	86,83 ± 1,86 c		

Dose 0,25 mg/g bb a little influence to improvement of normal spermatozoa morphology percentage. Improvement of dose 0,33 mg/g bb shows different influence unsignificant to dose 0,25 mg/g bb, while dose 0,5 mg/g bb significant to dose 0,33 mg/g bb. Improvement of progressive motility percentage is anticipated because or solvent estimable content of activation or motion of spermatozoa by increasing of ATP - ase enzymatic activity. Centered of tide spermatozoa compiled by microtubules containing substance fiber(13,14). This fiber substance compiled by dynein protein in centre (*middle piece*) of spermatozoa cell membrane what results the happening of improvement motility of spermatozoa by maintaining ion sodium and potassium homeostatic.

CONCLUSION

Based on result of research hence inferential that exposure of extract Piper retrofractum Vahl to male mice sexual organ (*Mus musculus* L.) Swiss Webster causes:

- Improvement average numbers of spermatogenia, spermatocyte, spermatide, and spermatogenic cells, and increases closeness of association of cells spermatogenic.
- Improvement number or normal spermatozoa morphologies, rate of progressive motility of spermatozoa, and viability of spermatozoa.

Increasing of dose extract cause increase of spermatogenesis effectiveness, quality
of spermatozoa, especially dose 0,50 mg/g bb compared to control and the other of
group.

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musculus L) Swiss Webster

Jumlah Penulis : Yuanita Windusari, Arum Setiawan

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