RINGKASAN

PENGARUH PEMBERIAN *ROYAL JELLY* PERORAL TERHADAP BERAT TESTIS, PROPORSI BERAT TESTIS TERHADAP BERAT BADAN TIKUS, DIAMETER TUBULUS SEMINIFERUS, TEBAL EPITEL TUBULUS SEMINIFERUS DAN PROPORSI TEBAL EPITEL TERHADAP DIAMETER TUBULUS SEMINIFERUS TESTIS TIKUS PUTIH *(Rattus norvegicus strain Wistar)* JANTAN

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Dewasa ini penggunaan *royal jelly* untuk berbagai minuman suplemen energi telah banyak ditemukan. Berbagai produk kecantikan untuk wanita juga banyak mengandung *royal jelly*. Tidak jarang produk-produk suplemen untuk menambah vitalitas pria juga mengandung *royal jelly*. Meskipun penggunaannya telah meluas. Pengetahuan masyarakat tentang *royal jelly* masih sangat kurang.

Salah satu efek yang diduga terdapat dalam *royal jelly* adalah dapat meningkatkan vitalitas dan kesuburan pria. Mitos penggunaan *royal jelly* untuk meningkatkan vitalitas dan kesuburan ini didasari oleh adanya perbedaan kemampuan reproduksi lebah ratu dan lebah pekerja yang sangat jauh berbeda karena perbedaan makanannya yaitu *royal jelly*. Penelitian-penelitian pada hewan coba sebelumnya telah membuktikan bahwa pemberian *royal jelly* pada ayam, kelinci dan burung puyuh dapat meningkatkan fertilitas hewan-hewan tersebut. Diduga efek tersebut disebabkan oleh gonadotropin yang terkandung di dalam *royal jelly*. Penelitian sebelumnya, membuktikan bahwa *royal jelly* dapat meningkatkan fertilitas pada mencit betina (Nurmiati,2002). Sementara itu penelitian pengaruh *royal jelly* terhadap jaringan testis belum pernah diteliti.

Dengan penelitian ini, penulis ingin mengetahui apakah pemberian *royal jelly* peroral pada tikus putih jantan dapat meningkatkan berat testis, proporsi berat testis terhadap berat badan tikus, tebal epitel tubulus seminiferus, diameter tubulus seminiferus dan proporsi tebal epitel tubulus terhadap diameter tubulus seminiferus testis tikus putih jantan sehingga dapat dibuktikan pengaruh royal jelly terhadap spermatogenesis.

Jenis penelitian yang dilakukan adalah penelitian eksperimental laboratorik dengan menggunakan rancangan penelitian Post Test Only Control Group Design dan data penelitian yang diperoleh dianalisis secara statistik menggunakan Anova dengan derajat kemaknaan kurang dari 0,05 ($p<0,05$).

Sampel penelitian ini adalah tikus putih jantan dewasa yang dibagi menjadi 4 kelompok dengan besar sampel masing-masing 8 ekor. K1 : kelompok kontrol yang mendapatkan aquadest 3 ml/hr peroral, P1 : kelompok perlakuan dengan pemberian *royal jelly* 15 mg/kgBB/hr peroral, P2 : kelompok perlakuan dengan pemberian *royal jelly* 30 mg/kgBB/hr peroral dan P3 : kelompok perlakuan dengan pemberian *royal jelly* 45 mg/kgBB/hr peroral. Perlakuan diberikan selama 52 hari.

Setelah 52 hari perlakuan, hewan coba ditimbang berat badannya dan dikorbankan untuk diambil testisnya. Testis ditimbang kemudian dimasukkan larutan fiksatif untuk selanjutnya dibuat sediaan histologik metode parafin dengan pewarnaan PAS. Hasilnya diamati dengan mikroskop cahaya pembesaran 10 x 40 dan difoto dengan kamera digital untuk kemudian diukur tebal epitel tubulus dan diameter tubulus seminiferusnya dengan dengan bantuan komputer dengan program Image Tool.

Dari data penelitian rata-rata berat testis, proporsi berat testis terhadap berat badan tikus, tebal epitel tubulus seminiferus, diameter tubulus seminiferus dan proporsi tebal epitel terhadap diameter tubulus seminiferus pada kelompok perlakuan secara umum lebih besar daripada kelompok kontrol. Hanya rata-rata diameter tubulus seminiferus kelompok 45 mg/kgBB saja yang didapatkan lebih kecil daripada kelompok kontrol tetapi proporsi tebal epitel tubulus terhadap diameter tubulus seminiferus pada kelompok tersebut tetap lebih besar daripada kelompok kontrol. Data penelitian tersebut setelah dianalisis secara Anova dan didapatkan bermakna dilanjutkan dengan uji LSD untuk mengetahui pasangan kelompok mana yang ada perbedaan bermakna.

Dari penelitian ini disimpulkan bahwa pemberian *royal jelly* peroral tidak terbukti dapat meningkatkan berat testis, proporsi berat testis terhadap berat badan tikus dan diameter tubulus seminiferus namun terbukti dapat meningkatkan tebal epitel tubulus seminiferus dan proporsi tebal epitel tubulus terhadap diameter tubulus seminiferus testis tikus putih.

Untuk mendukung keakuratan penelitian ini, maka diperlukan penelitian lebih lanjut untuk menghitung jumlah sel-sel spermatogenik, sel-sel Sertoli dalam tubulus seminiferus dan sel-sel Leydig pada jaringan interstitial testis tikus putih.

SUMMARY

THE INFLUENCE OF *ROYAL JELLY* ORAL FEEDING ON TESTICULAR WEIGHT, THE PROPORTION OF TESTICULAR WEIGHT TO THE RAT'S BODY WEIGHT, SEMINIFEROUS TUBULE DIAMETER, THE THICKNESS OF SEMINIFEROUS TUBULE EPITHELIUM AND THE PROPORTION OF THE THICKNESS OF SEMINIFEROUS TUBULE EPITHELIUM TO SEMINIFEROUS TUBULE DIAMETER IN MALE WHITE RATS *(Wistar strain Rattus norvegicus)*

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These days used of *Royal Jelly* to various beverage of energy supplement have a lot of found. Various beauty products for women also contain *royal jelly*. Many supplement products to add the man vitality also contain *royal jelly*. Though *royal jelly* became widely consumed, the society knowledge about *royal jelly* still very less.

One of the effects of *royal jelly* was considered can improve the vitality and men's fertility. The myth of royal jelly to increase fertility and vitality started with an amazing biological phenomenon on the queen bee. It is mainly spectacular fertility and long life-span of the queen, exclusively fed on royal jelly, which have suggestively led people to believe that royal jelly produces similar effects in humans. Research at animal try previously have proved that the gift of *royal jelly* at chickens, quails and rabbits can improve the animal fertility. It considered that the effect because of gonadotropin which consisted in *royal jelly*. Research previously, proving that *royal jelly* can improve the fertility of female rats (Nurmiati,2002). Meanwhile the influence of peroral *royal jelly* feeding to the testis have never been checked.

With this research, writer wish to know whether *royal jelly* oral feeding at white rats can improve the testicular weight, proportion of the testicular weight to the rats body weight, the thickness of tubulus seminiferous epithelium, diameter of tubulus seminiferous and the proportion of the thickness seminiferous tubule epithelium to the seminiferous tubule diameter at the male white rats that prove the influence of *royal jelly* to spermatogenesis.

This research was a laboratory experimental study using the Post Test Only Control Groups Design dan the datas were analyzed statistically using Anova with significance level of less than 0,05.

This Sample Research are 32 adult male white rats that divided into 4 groups in random, and each group had been provided with one rat as replacement if there was dead rat during the treatment for 52 days. K1 : control group getting aquadest 3 ml / day oral feeding, P1 : treatment group with *royal jelly* oral feeding 15 mg/kgBW/day, P2 : treatment group with *royal jelly* oral feeding 30 mg/kgBW/day and P3 : treatment group with *royal jelly* oral feeding 45 mg/kgBW/day.

After 52 treatment days, the animals were sacrificed to remove the testis, which was subsequently scaled using electronic scale. Afterwards, histological preparations were made using paraffin method with PAS staining. The results were observed using light microscope in 10 x 40 magnification and photographed with the digital camera and then measured the diameter and thickness of seminiferous tubule epithelium using personal computer with the program of Image Tool.

Datas showed that the average of testicular weight, the proportion of testicular weight to the rat's body weight, the thickness of seminiferous tubule epithelium,

seminiferous tubule diameter and the proportion of the thickness of seminiferous tubule epithelium to the seminiferous tubule diameter in the treatment groups were bigger than the control group. Only the diameter of seminiferous tubule in group 45 mg/kgBW/day got smaller than the control group but the proportion of the thickness of seminiferous tubule epithelium to the seminiferous tubule diameter at the group remain to be bigger than the control group. The Research data were analyzed using Anova to indicate significant difference between all treatment and control groups. To identify which group had significant difference in each variable, the analysis was continued with LSD test.

In conclusion, *royal jelly* oral feeding can improve the thickness of seminiferous tubule epithelium and the proportion of the thickness of seminiferous tubule epithelium to the diameter of seminiferous tubule without change the proportion of the testicular weight to the rat's body weight in male white rats.

To confirm the accuracy of this study, further research is needed to count spermatogenic cells, Sertoly cells and Leydig cells in testicular seminiferous tubule in male white rats.

ABSTRACT

THE INFLUENCE OF *ROYAL JELLY* ORAL FEEDING ON TESTICULAR WEIGHT, THE PROPORTION OF TESTICULAR WEIGHT TO THE RAT'S BODY WEIGHT, SEMINIFEROUS TUBULE DIAMETER, THE THICKNESS OF SEMINIFEROUS TUBULE EPITHELIUM AND THE PROPORTION OF THE THICKNESS OF SEMINIFEROUS TUBULE EPITHELIUM TO SEMINIFEROUS TUBULE DIAMETER IN MALE WHITE RATS *(Wistar strain Rattus norvegicus)*

Royal jelly was considered can improve men's vitality and fertility. Animal studies have proved that *royal jelly* feeding at chickens, quails and rabbits can improve the fertility. Nurmiati study (2002) also proved that *royal jelly* can improve the fertility of female rats. The purpose of this study is to prove the influence of *royal jelly* feeding to spermatogenesis with measuring testicular weight, proportion of the testicular weight to the rats body weight, the thickness of tubulus seminiferous epithelium, diameter of tubulus seminiferous and the proportion of the thickness seminiferous tubule epithelium to the seminiferous tubule diameter at the male white rats

This research was a laboratory experimental study using the Post Test Only Control Groups Design and the datas were analyzed statistically using Anova with significance level of less than 0,05. The sampel research are 32 adult male white rats that divided into 4 groups in random, and each group had been provided with one rat as replacement if there was dead rat during the treatment for 52 days. K1 : control group getting aquadest oral feeding 3 ml / day, P1 : treatment group with *royal jelly* oral feeding 15 mg/kgBW/day, P2 : treatment group with *royal jelly* oral feeding 30 mg/kgBW/day and P3 : treatment group with *royal jelly* oral feeding 45 mg/kgBW/day. All datas were analyzed using Anova to indicate significant differences between all treatment and control groups. To identify which group had significant difference in each variable, the analysis was continued with LSD test.

In conclusion, *royal jelly* oral feeding can improve the thickness of seminiferous tubule epithelium and the proportion of the thickness of seminiferous tubule epithelium to the diameter of seminiferous tubule in male white rats without change the proportion of the testicular weight to the rat's body weight.

Keywords : royal jelly, testicular weight, spermatogenesis, seminiferous tubule.