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## **CURRICULUM VITAE**

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### B. Riwayat Pendidikan

1. Pendidikan Format:
  - a. Tamat SD tahun 2006 di SD Negeri 9 Palu
  - b. Tamat SMP tahun 2009 di SMP Negeri 4 Palu
  - c. Tamat SMA tahun 2012 di SMA Negeri 3 Palu
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2. Pendidikan Non Formal
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### C. Pekerjaan dan Riwayat Pekerjaan

- Bidan Honorer Di RSUD Anutapura Palu
- Bidan Pelaksana Di Klinik Bersalin Agustina Gozal

### D. Karya Ilmiah/Artikel Jurnal yang telah dipublikasikan

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### E. Makalah pada Seminar/Konferensi Ilmiah Nasional dan Internasional

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LAMPIRAN

II Penelitian

No	Kegiatan	Januari				Februari				Maret				April				Mei				Juni				Juli				Agustus			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1.	Identifikasi Masalah Penelitian																																
2.	Masukkan Judul																																
3.	Studi Kepustakaan																																
4.	Menyusun Proposal																																
5.	Pembuatan Produk																																
6.	Seminar Proposal																																
7.	Proses Penelitian																																
8.	Menyusun Hasil																																
9.	Seminar Hasil																																

Optimization Software:  
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## 2. Perhitungan Dosis

Berdasarkan penelitian terdahulu dosis lazim pemberian madu pada tikus sebanyak 200 mg/200 gBB per hari memiliki pengaruh pada peningkatan kadar HDL (Azman et. Al, 2016)

### a. Perhitungan Dosis *Cocktail Honey*

$$\begin{aligned} \text{Dosis} &= \text{Dosis madu lazim pada mencit} \times \text{faktor konversi} \\ &= 300 \text{ mg} \times 0.14 \\ &= 42 \text{ mg}/20 \text{ gBB} \end{aligned}$$

jika bobot tikus 25 g

$$\begin{aligned} \text{Dosis} &= \frac{25}{20} \times 42 \\ &= 1,2 \times 42 \\ &= 52,5 \text{ mg} \\ &= 0,05 \text{ g}/25 \text{ gBB} \\ &= 0,05 \text{ ml}/25 \text{ gBB} \end{aligned}$$

Jadi, masing-masing tikus akan mendapatkan dosis *Cocktail Honey* sebanyak 0,05 ml kemudian diencerkan sebanyak 5 kali sehingga menjadi 0.25 ml atau 0.3 ml



Tabel Faktor Konversi

	Mencit 20 gr	Tikus 200 gr	Marmot 400 gr	Kelinci 1,5 kg	Kucing 2 kg	Kera 4 kg	Anjing 12 kg	Manusia 70 kg
Mencit 20 gr	1.0	7.0	12.25	27.8	29.7	64.1	124.2	387.9
Tikus 200 gr	0.14	1.0	1.74	3.9	4.2	9.2	17.8	56.0
Marmot 400 gr	0.08	0.57	1.0	2.25	2.4	5.2	10.2	31.5
Kelinci 1,5 kg	0.04	0.25	0.44	1.0	1.08	2.4	4.5	14.2
Kucing 2 kg	0.03	0.23	0.41	0.92	1.0	2.2	4.1	13.0
Kera 4 kg	0.016	0.11	0.19	0.42	0.45	1.0	1.9	6.1
Anjing 12 kg	0.008	0.06	0.1	0.22	0.24	0.52	1.0	3.1
Manusia 70 kg	0.0026	0.018	0.031	0.07	0.076	0.16	0.32	1.0

(Sumber: Laurence & Bacharach, 1964)

### 3. Pembagian kelompok *Cocktail Honey*

Kelompok	Kandungan	Dosis (per 20 gram berat mencit)
<i>Cocktail honey</i>	30 gram madu: 30 gram <i>royal jelly</i> : 30 gram <i>bee bread</i>	42 mg



#### 4. Bobot Badan Mencit Selama Intervensi

Cocktail Honey						
1	23	23	24	24	26	26
2	21	21	23	23	23	24
3	23	23	23	24	24	24
4	24	25	26	26	26	28
5	18	21	21	22	23	23
Kontrol						
1	26	25	25	24	24	24
2	27	27	26	26	24	24
3	26	26	24	23	23	22
4	25	24	23	23	22	22
5						

#### 5. Tabel Indikator Stres

Kelompok	M	S	Hari Intervensi														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Kontrol	1	A	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	2	A	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	3	A	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	4	A	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	5	A	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Cocktail Honey	1	A	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	2	A	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	3	A	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	4	A	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	5	A	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

Keterangan:

M = Mencit Ke-

= Tanda-Tanda Stres

= Jika mencit mempertahankan posisi hidung berada di atas air

= Jika mencit telah mengapung di atas air tanpa melakukan banyak pergerakan



6. Master Tabel Glutathion, Estrogen, Kortisol, Pretest dan Posttest

No	Glu_Pre	Glu_Kontrol_Pre	Est_Pre	Est_Kontrol_Pre	Kort_Pre	Kort_Kontrol_Pre	Glu_Post	Glu_Kontrol_Post	Est_Post	Est_Kontrol_Post	Kort_Post	Kort_Kontrol_Post
1	0,4099	0,5099	1,7689	2,1835	10,7661	8,9178	4,0878	1,2770	28,6021	11,3896	16,8729	12,1116
2	0,2439	0,3527	3,9839	3,2076	8,1081	8,3132	7,7845	0,0446	26,2141	10,0965	12,2703	17,0406
3	0,3992	1,1308	0,1966	1,2443	8,7989	7,7210	3,0753	0,7755	26,9583	2,1835	11,1585	9,2396
4	0,3675	2,2840	2,7922	1,2443	8,6323	7,5423	4,7665	1,8534	32,0201	3,2353	10,7719	9,8565
5	0,3592	1,1001	1,6524	1,2138	9,1991	7,6310	4,5660	0,8542	26,3432	2,7218	10,2245	9,3629





## 7. Dokumentasi Penelitian

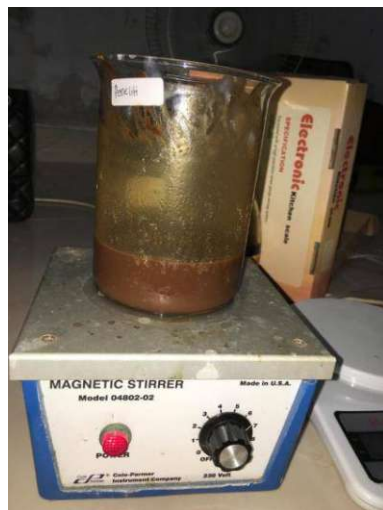
### MADU



### ROYAL JELLY DAN BEE BREAD



### PROSES PEMBUATAN PRODUK



## PROSES PENGUJIAN PRODUK



## PROSES PENGAMBILAN DARAH PRETEST



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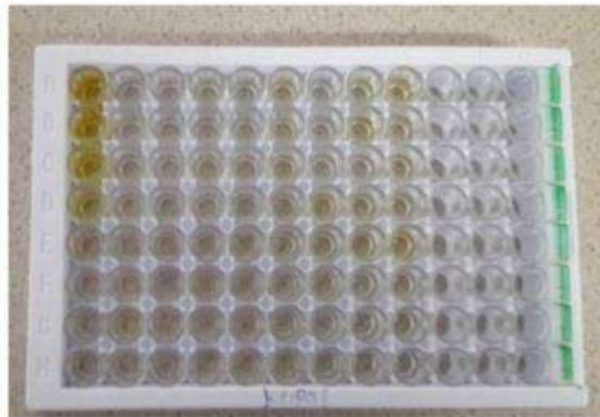




### PENGAMBILAN DARAH POSTTEST



### PROSES ANALISIS GLUTATION, ESTROGEN, KORTISOL





SPSS  
tathione

Paired Samples Statistics						
	Mean	N	Std. Deviation	Std. Error Mean		
Pair 1	.355940	5	.0661066	.0295638		
	4.856020	5	1.7627568	.7883288		
Pair 2	1.075500	5	.7593548	.3395938		
	.960940	5	.6674277	.2984828		

Paired Samples Correlations				
	N	Correlation	Sig.	
Pair 1	5	-.962	.009	
Pair 2	5	.764	.132	

Paired Samples Test								
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1	-4.5000800	1.8264635	.8168193	-6.7679339	-2.2322261	-5.509	4	.005
Pair 2	.1145600	.4974609	.2224713	-.5031193	.7322393	.515	4	.634



rogen

Paired Samples Statistics						
	Mean	N	Std. Deviation	Std. Error Mean		
Pair 1	Est_Pre	5	1.4105741	.6308279		
	Est_Post	5	2.4258759	1.0848847		
Pair 2	Est_Kontrol_Pre	5	.8786206	.3929311		
	Est_Kontrol_Post	5	4.4372588	1.9844025		

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Est_Pre & Est_Post	5	.142	.820
Pair 2	Est_Kontrol_Pre & Est_Kontrol_Post	5	.860	.061

Paired Samples Test									
		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	Est_Pre - Est_Post	-25.9487600	2.6270714	1.1748620	-29.2107000	-22.6868200	-22.087	4	.000
Pair 2	Est_Kontrol_Pre - Est_Kontrol_Post	-4.1066400	3.7083353	1.6584179	-8.7111464	.4978664	-2.476	4	.068



rtisol

Paired Samples Statistics					
	Mean	N	Std. Deviation	Std. Error Mean	
Pair 1	Kort_Pre	9.100900	5	1.0098238	.4516069
	Kort_Post	12.259620	5	2.6856077	1.2010403
Pair 2	Kort_Kontrol_Pre	8.025060	5	.5832672	.2608450
	Kort_Kontrol_Post	11.522240	5	3.2957369	1.4738983

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Kort_Pre & Kort_Post	5	.784	.117
Pair 2	Kort_Kontrol_Pre & Kort_Kontrol_Post	5	.581	.305

Paired Samples Test									
		Paired Differences			t	df	Sig. (2-tailed)		
		Mean	Std. Deviation	Std. Error Mean				95% Confidence Interval of the Difference	
								Lower	Upper
Pair 1	Kort_Pre - Kort_Post	-3.1587200	1.9953947	.8923676	-3.540	4	.024		
Pair 2	Kort_Kontrol_Pre - Kort_Kontrol_Post	-3.4971800	2.9948988	1.3393594	-2.611	4	.059		



1 July 2020

To: First Author (A Mustika Fadillah Rizki)

### Letter of Acceptance

I have pleasure to inform that your paper titled "Effect of Royal Jelly to deal with **stress oxidative in** preconception women; A Literature Review" has been **accepted for publication in the IJCRR indexed in SCOPUS. We have received your edited and improved paper. Your paper will be issued on December 2020 issue**

Yours sincerely,  
 Editor-in-Chief Prof. Dr Sachin Ingle  
 MIMSR Medical College, Maharashtra, India.  
<https://www.ijcrr.com>

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## Effect of Royal Jelly to deal with stress oxidative in preconception women; A Literature Review

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### ABSTRACT

**Introduction:** oxidative stress that occurs in preconception women can disrupt the reproductive system to cause infertility. The antioxidants contained in royal jelly can overcome oxidative stress due to low antioxidants in the body. This systematic study examines studies of the content of royal jelly, antioxidant activity, and the effectiveness of royal jelly in dealing with oxidative stress in preconception women.

**Method:** This research method is an electronic database search using keywords according to questions in research from the online library PubMed, content science, and Science Direct.

**Result:** a study review conducted in six research journals were the use of royal jelly as a supplement containing 10-hydroxy-2-decanoic (10-HDA) that increases glutathione levels, as well as lipid peroxidation inhibitors.

**Conclusion:** The effectiveness of royal jelly to overcome oxidative stress of preconception women can be assessed through the content and antioxidant activity of royal jelly, which can increase the glutathione levels and inhibit increased lipid peroxidation which is a sign of oxidative stress

jelly, stress, oxidative stress, preconception.



Preconception is very important for preconception women to prepare themselves before conception occurs. Thus, the fulfillment of nutrition and the mother's psychological condition must be suitable for giving birth to healthy offspring (1). The satisfaction of proper nutrition during the preconception will reduce the risk of complications at the time of conception that will affect the health of the offspring (2). Besides, the stress level that occurs in women during this preconception also greatly affects the health of the mother, which will cause menstrual disorders, PCOS (Polycystic Ovarian Syndrome), and infertile (3). Oxidative stress is a form of stress that occurs due to the body's lack of antioxidants and high free radicals that will damage the cells (4).

The handling of oxidative stress in preconceived women done with non-pharmacological therapy, one of which is the use of royal jelly. Royal jelly is another product of bees produced by thick white bees such as milk secreted from the hypopharyngeal gland and mandibular worker bees as food from the queen bee (5). Royal jelly is often referred to as a superfood because it contains complex nutrients, namely fat, water, carbohydrates, protein, amino acids, sugar, iron, calcium, and vitamins. Additionally, royal jelly also contains flavonoids and phenolic acids, which are part of phenolics as antioxidants (6,7). The complexity of royal jelly nutrition content provides pharmacological effects such as antibacterial, anti-tumor, anti-allergic, and anti-inflammatory (8).

Several studies have been conducted in discussing the chemical structure, content, bioactivity, and antioxidant examination of royal jelly, which can be used as scientific information on the benefits of royal jelly. However, the explanation of the benefits of the royal jelly's report as a non-pharmacological therapy in preconception stress women it's very little. Thus, this literature review aims to provide information about the effect and benefit of royal jelly against oxidative stress that occurs in preconception women.

## Method

In journals searching in this literature review, by using online libraries to look for journals relevant to the content and benefits of royal jelly in overcoming the stress on preconception women in this literature, namely PubMed, ContentSciendo, and ScienceDirect. In the search for related articles based on keywords in questions in the study. Search keywords consist of; royal jelly, stress, oxidative stress, preconception.



The search for articles that have done by filtering according to research keywords in the last five years acquired 25 articles related to the content of royal jelly and oxidative activity. Then do the filtering of the articles again related to the questions in this study so that six items are appropriate.

### 1. The main content of royal jelly

royal jelly contains 50% –70% water, 7% –18% carbohydrate, 9% –18% protein, 3% –8% lipids, and 1.5% mineral salts, polyphenols, enzymes, hormones, and vitamins. Royal jelly contains bioactive components consisting of peptides, sterols, and fatty acids, such as 10-hydroxy-2-decanoic, effective in reducing ROS (reactive oxygen species) and hydroxyl radicals (9).

Table 1, mineral and vitamin content of royal jelly (7,10)

Minerals and Vitamins	Royal jelly (mg/100 g)
Potassium	200-1000 mg
Magnesium	20-100 mg
Iron	1-11 mg
Zink	0,7-8 mg
Copper	0,33-1,6 mg
B1 (Thiamin)	0,1-1,7 mg
B2 (Riboflavin)	0,5-2,5 mg
B3 (Niacin)	4,5-19 mg
B5 (Panthothenic acid)	3,6-23 mg
B6 (Pyridoxin)	0,2-5,5 mg
H (Biotin)	0,15-0,55 mg
Folic Acid	0,01-0,06 mg

### 2. antioxidant in royal jelly

A flavonoid is a form of antioxidants contained in the royal jelly. It can divide into flavonoids (hesperetin, isosakuranetin, dan naringenin), flavon, flavonol, and dan isoflavonoid (7). The royal jelly contains  $23.3 \pm 0.92$  GAE  $\mu\text{g}/\text{mg}$  total of phenolics and  $1.28 \pm 0.09$  RE  $\mu\text{g}/\text{mg}$  of total flavonoid (11). The royal jelly contained are Pinobanksin, organic acids, and their esters, for example, octanoic acid, 2-hexanoic acid, and their decanoic acid, and their esters, 1,2-benzene dicarboxylic acid, and benzoic acid are the main phenolic compounds(12).

in dealing with oxidative stress in preconception women



The antioxidant content of royal jelly can overcome oxidative stress due to high free radicals in preconception women. In some studies, royal jelly provides significant protection against the liver and kidneys by reducing lipid peroxidation and increasing glutathione (GSH) as an antioxidant. (13). Royal jelly also contains a bioactive component in the form of 10-hydroxy-2-decanoic (10-HDA), which functions as an anti-inflammatory and can reduce oxidative stress (14). Also, royal jelly can increase the growth and development of follicles that secrete estradiol to stimulate the uterus, increase LH (luteinizing hormone), and ovulation (15,16). The royal jelly contains MRJP 1. Which is gives the hypercholesterolemia effect, which will increase the inhibition of corticosterone synthesis (17).





## and effect of royal jelly

	Purpose	The dose of royal jelly	The effect of royal jelly
016) (15)	To Evaluate the Effect of royal jelly as an antioxidant and antidiabetic on histopathological alterations of the testicular tissue in streptozotocin (STZ)-induced diabetic rats.	100 mg/kg BW for six weeks orally	The effect of giving royal jelly can cure testicular disorders due to diabetes through the antioxidant content in royal jelly
Teixeira et al. (2017) (18)	The evaluation of royal jelly in increasing antioxidants conducted by maintaining the glutathione system and reducing corticosterone levels in the nerve tissue of stressed mice	. It found that the concentration of 200 mg/kg BW for 14 days	increases the antioxidant effect by rebuilding the glutathione system. It will be reducing lipid peroxidation and decreasing corticosterone levels by increasing the antioxidant system in the brain
Altay & Alver. (2017) (19)	To increase antioxidants by rebuilding the glutathione oral system, reducing lipid peroxidation, and decreasing corticosterone levels by increasing the antioxidant system in the brain.	100 mg/kg, for 30 days by oral	Royal jelly can increase protein carbonyl (PC) and 8-hydroxy-deoxyguanosine (8-OHdG), catalase (CAT), and glutathione (GSH).
Ghanbari et al. (2016) (20)	To evaluate the effects of royal jelly on serum biochemical alterations and oxidative stress status in liver and pancreas of	100 mg/kg body weight for 42 days by oral	Royal jelly can significantly reduce FRAP and CAT levels as well as high levels of MDA in the liver and pancreas rat.



streptozotocin (STZ) rat

Know the effect of royal jelly 1000 mg, three times daily on increasing antioxidant capacity for eight weeks

Royal jelly can increase antioxidant capacity in diabetic patients

15) (21)

The Royal Jelly effect 100, 200 and 400 mg/kg/body weight daily performed on a set of reproductive parameters in immature female rats.

Royal jelly can increase serum levels of ferric reducing antioxidant power and decrease nitric oxide level.

018) (13)



## Discussion

The six journal articles above explain that giving royal jelly as a supplement can have a significant effect in increasing antioxidant levels to reduce oxidative stress during preconception (20). Antioxidants usually inhibit the production of ROS (reactive oxygen species) and bind to free radicals so that they become reactive (15). The antioxidant effect contained in the royal jelly can maintain the increase in glutathione in the blood, which is the primary antioxidant that functions as a detoxifier and regulates the immune system. (21). Glutathione is produced from cells directly involved in neutralizing ROS free radicals and maintaining reduced vitamin C and E as exogenous antioxidants (19). In other studies administering royal jelly with specific doses can increase antioxidants in the FRAP (ferric reducing antioxidant power) test and reduce nitric oxidase levels, which by decreasing nitric oxidase levels can reduce ROS increase (13). Besides, an antioxidant activity that maintains elevated levels of glutathione in royal jelly can reduce lipid peroxidation, which is a sign of oxidative stress. (18).

## Conclusion

Based on a journal search utilizing royal jelly as a supplement to increase antioxidants in the body in overcoming oxidative stress in preconception women. It found that very practical for use because, in several laboratory tests that have done that, royal jelly is given to animals, trying to increase glutathione levels as the primary antioxidant in the body. It can suppress increase lipid peroxidation so that oxidative stress overcome.

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