

LAMPIRAN

Lampiran 1. Analisis Statistik Pengaruh Perlakuan terhadap Kadar Protein Hati Broiler

Ulangan	Kadar Protein Hati				
	P0	P1	P2	P3	P4
%				
1	19,84	18,59	18,59	19,11	14,85
2	10,60	20,78	15,89	19,74	15,69
3	16,62	19,53	15,79	19,01	20,47
4	11,53	18,07	20,36	19,22	20,37
Total	58,59	76,97	70,63	77,08	71,38
Rata-rata	14,65	19,24	17,66	19,27	17,85
Σx^2	915,15	1485,34	1261,93	1485,65	1300,66
Standar Deviasi	4,36	1,19	2,22	0,32	2,99

$$\begin{aligned}
 1. \quad FK &= \frac{\sum Y^2}{tr} \\
 &= \frac{354,65^2}{20} = 6288,83
 \end{aligned}$$

$$\begin{aligned}
 2. \quad JK \text{ Perlakuan} &= \sum \frac{Y_i^2}{r} - FK \\
 &= \left(\frac{58,59^2}{4} + \frac{76,97^2}{4} + \frac{70,63^2}{4} + \frac{77,08^2}{4} + \frac{71,38^2}{4} \right) - 6288,83 \\
 &= 56,72
 \end{aligned}$$

$$\begin{aligned}
 3. \quad JK \text{ Total} &= \sum Y_{ij}^2 - FK \\
 &= (19,84^2 + 10,59^2 + \dots + 20,36^2) - 6289,18 \\
 &= 6448,73 - 6288,83
 \end{aligned}$$

$$\begin{aligned}
&= 159,9 \\
4. \quad JK \text{ Galat} &= JK \text{ Total} - JK \text{ Perlakuan} \\
&= 159,9 - 56,72 \\
&= 103,18 \\
5. \quad db \text{ Perlakuan} &= t - 1 \\
&= 5 - 1 \\
&= 4 \\
6. \quad db \text{ Total} &= (tr) - 1 \\
&= (5 \times 4) - 1 \\
&= 19 \\
7. \quad db \text{ Galat} &= t (r - 1) \\
&= 5 (4 - 1) \\
&= 15 \\
8. \quad KT \text{ Perlakuan} &= \frac{JK \text{ Perlakuan}}{db \text{ Perlakuan}} \\
&= \frac{56,72}{4} \\
&= 14,18 \\
9. \quad KT \text{ Galat} &= \frac{JK \text{ Galat}}{db \text{ Galat}} \\
&= \frac{103,18}{15} \\
&= 6,88 \\
10. \quad F. \text{ Hitung} &= \frac{KTP}{KTG} \\
&= \frac{14,18}{6,88}
\end{aligned}$$

$$= 2,06$$

11. F. Tabel = 3,06

Tabel Analisis Sidik Ragam

Sumber Keragaman	Db	JK	KT	F. Hitung	F. Tabel
Perlakuan	4	56,72	14,18	2,06*	3,06
Galat	15	103,18	6,88		
Total	19	159,90			

Keterangan : *) tidak berbeda nyata

F. hitung \leq F tabel $_{0,05}$. Pemberian probiotik tidak berbeda nyata ($P > 0,05$) terhadap peningkatan kadar protein hati broiler pasca transportasi yang diberi probiotik selama pemeliharaan.

Lampiran 2. Analisis Statistik Pengaruh Perlakuan terhadap Kadar Lemak Hati Broiler

Ulangan	Kadar Lemak Hati				
	P0	P1	P2	P3	P4
%				
1	4,00	2,01	2,07	2,05	2,95
2	3,72	2,61	3,93	1,88	2,98
3	3,05	1,98	2,46	1,70	3,93
4	3,41	2,85	3,21	2,17	3,70
Σ	14,18	9,45	11,67	7,80	13,56
Rata-rata	3,55	2,36	2,92	1,95	3,39
Σx^2	50,77	22,90	36,09	15,34	46,72
Standar Deviasi	0,41	0,44	0,82	0,20	0,50

$$1. \quad FK = \frac{\sum Y^2}{tr}$$

$$= \frac{56,66^2}{20} = 160,52$$

$$2. \quad JK \text{ Perlakuan} = \sum \frac{Y_i^2}{r} - FK$$

$$= \left(\frac{14,18^2}{4} + \frac{9,45^2}{4} + \frac{11,67^2}{4} + \frac{7,80^2}{4} + \frac{13,56^2}{4} \right) - 160,52$$

$$= 7,30$$

$$3. \quad JK \text{ Total} = \sum Y_{ij}^2 - FK$$

$$= (4,00^2 + 3,72^2 + \dots + 3,70^2) - 160,52$$

$$= 171,82 - 160,52$$

$$= 11,30$$

$$4. \quad JK \text{ Galat} = JK \text{ Total} - JK \text{ Perlakuan}$$

$$\begin{aligned}
&= 11,30 - 7,30 \\
&= 4 \\
5. \quad \text{db Perlakuan} &= t - 1 \\
&= 5 - 1 \\
&= 4 \\
6. \quad \text{db Total} &= (tr) - 1 \\
&= (5 \times 4) - 1 \\
&= 19 \\
7. \quad \text{db Galat} &= t(r - 1) \\
&= 5(4 - 1) \\
&= 15 \\
8. \quad \text{KT Perlakuan} &= \frac{JK \text{ Perlakuan}}{db \text{ Perlakuan}} \\
&= \frac{7,30}{4} \\
&= 1,83 \\
9. \quad \text{KT Galat} &= \frac{JK \text{ Galat}}{db \text{ Galat}} \\
&= \frac{4}{15} \\
&= 0,27 \\
10. \quad \text{F. Hitung} &= \frac{KTP}{KTG} \\
&= \frac{1,83}{0,27} \\
&= 6,78 \\
11. \quad \text{F. Tabel 0,05} &= 3,06
\end{aligned}$$

Tabel Analisis Sidik Ragam

Sumber Keragaman	Db	JK	KT	F. Hitung	F. Tabel
Perlakuan	4	7,30	1,83	6,78*	3,06
Galat	15	4,00	0,27		
Total	19	11,30			

Keterangan: *) berbeda nyata

F. hitung > F tabel _{0,05}. Pemberian probiotik berbeda nyata (P<0,05) terhadap penurunan kadar lemak hati broiler pasca transportasi yang diberi probiotik selama pemeliharaan.

Hasil Uji Lanjut

Uji Contrast Orthogonal atau Pembanding Ortogonal

4 pembanding orthogonal didapat dari $t - 1 = 5 - 1 = 4$

L₁ = P0 vs P1, P2, P3, P4

L₂ = P1P2 vs P3P4

L₃ = P1 vs P2

L₄ = P3 vs P4

Tabel Koefisien Pembanding

	P0	P1	P2	P3	P4
L ₁	4	-1	-1	-1	-1
L ₂	0	1	-1	-1	1
L ₃	0	1	-1	0	0
L ₄	0	0	0	1	-1

Jumlah kuadrat tengah masing-masing pembanding (contrast) adalah:

$$\begin{aligned}
 JKL_1 &= L_1^2 / r \sum c_1^2 \\
 &= ((4 \times 14,18) - 9,45 - 11,67 - 7,80 - 13,56)^2 / (4)(20) \\
 &= 2,53
 \end{aligned}$$

$$\begin{aligned}
 \text{F hitung} &= KTL_1 / KTG \\
 &= 2,53 / 0,27 \\
 &= 9,37
 \end{aligned}$$

$$JKL_2 = L_2^2 / r \sum c_2^2$$

$$\begin{aligned}
&= (9,45 - 11,67 - 7,81 + 13,56)^2 / (4)(4) \\
&= 0,004 \\
\text{F hitung} &= \text{KTL}_2 / \text{KTG} \\
&= 0,004 / 0,27 \\
&= 0,01 \\
\text{JKL}_3 &= L_3^2 / r \sum c_3^2 \\
&= (9,45 - 11,67)^2 / (4)(2) \\
&= 0,62 \\
\text{F hitung} &= \text{KTL}_3 / \text{KTG} \\
&= 0,62 / 0,27 \\
&= 2,30 \\
\text{JKL}_4 &= L_4^2 / r \sum c_4^2 \\
&= (7,81 - 13,56)^2 / (4)(2) \\
&= 4,15 \\
\text{F hitung} &= \text{KTL}_4 / \text{KTG} \\
&= 4,15 / 0,27 \\
&= 15,37
\end{aligned}$$

Tabel Analisis Ragam dan Pembanding Orthogonal

Sumber Keragaman	Db	JK	KT	F. Hitung	F. Tabel
Perlakuan (Probiotik)	4	7,30	1,83	6,78*	3,06
Pembanding L ₁	1	2,53	2,53	9,37*	4,54
Pembanding L ₂	1	0,004	0,004	0,01	4,54
Pembanding L ₃	1	0,62	0,62	2,30	4,54
Pembanding L ₄	1	4,15	4,15	15,37*	4,54
Galat	15	4,00	0,27		
Total	19	11,26			

Keterangan : *) berbeda nyata

F. hitung > F tabel_{0,05}. Pembanding L₄ (P3) berbeda nyata (P<0,05) terhadap penurunan kadar lemak hati broiler pasca transportasi yang diberi probiotik selama pemeliharaan.

Lampiran 3. Kadar Protein Hati Broiler

Perlakuan	Absorbance			
	1	2	3	4
P0	0,191	0,102	0,160	0,111
P1	0,179	0,200	0,188	0,174
P2	0,179	0,153	0,152	0,196
P3	0,184	0,190	0,183	0,185
P4	0,143	0,151	0,196	0,195

Standar = 0,361

Standar Konsentrasi = 6 gr/dL

Panjang Gelombang = 545 nm

$$\text{Total Protein} = \frac{\text{Abs}(\text{Assay}) - \text{Abs}(\text{Specimen blank})}{\text{Abs}(\text{Standard})} \times \text{Standard concentration}$$

Protein Kasar = Total Protein \times 6,25

$$\begin{aligned} 1. \quad \text{POU1} &= \frac{0,191-0}{0,361} \times 6 \text{ g/dL} = 3,175 \text{ g/dL} \\ \text{PK} &= 3,175 \times 6,25 \\ &= 19,84 \% \end{aligned}$$

$$\begin{aligned} 2. \quad \text{POU2} &= \frac{0,102-0}{0,361} \times 6 \text{ g/dL} = 1,695 \text{ g/dL} \\ \text{PK} &= 1,695 \times 6,25 \\ &= 10,60 \% \end{aligned}$$

$$\begin{aligned} 3. \quad \text{POU3} &= \frac{0,160-0}{0,361} \times 6 \text{ g/dL} = 2,659 \text{ g/dL} \\ \text{PK} &= 2,659 \times 6,25 \\ &= 16,62 \% \end{aligned}$$

4. P0U4 = $\frac{0,111-0}{0,361} \times 6 \text{ g/dL}$ = 1,845 g/dL
PK = 1,845 × 6,25
= 11,53 %
5. P1U1 = $\frac{0,179-0}{0,361} \times 6 \text{ g/dL}$ = 2,975 g/dL
PK = 2,975 × 6,25
= 18,59 %
6. P1U2 = $\frac{0,200-0}{0,361} \times 6 \text{ g/dL}$ = 3,324 g/dL
PK = 3,324 × 6,25
= 20,78 %
7. P1U3 = $\frac{0,188-0}{0,361} \times 6 \text{ g/dL}$ = 3,125 g/dL
PK = 3,125 × 6,25
= 19,53 %
8. P1U4 = $\frac{0,174-0}{0,361} \times 6 \text{ g/dL}$ = 2,892 g/dL
PK = 2,892 × 6,25
= 18,07 %
9. P2U1 = $\frac{0,179-0}{0,361} \times 6 \text{ g/dL}$ = 2,975 g/dL
PK = 2,975 × 6,25
= 18,59 %
10. P2U2 = $\frac{0,153-0}{0,361} \times 6 \text{ g/dL}$ = 2,543 g/dL

$$\begin{aligned} \text{PK} &= 2,543 \times 6,25 \\ &= 15,89 \% \end{aligned}$$

$$\begin{aligned} 11. \quad \text{P2U3} &= \frac{0,152-0}{0,361} \times 6 \text{ g/dL} &&= 2,526 \text{ g/dL} \\ \text{PK} &= 2,526 \times 6,25 \\ &= 15,79 \% \end{aligned}$$

$$\begin{aligned} 12. \quad \text{P2U4} &= \frac{0,196-0}{0,361} \times 6 \text{ g/dL} &&= 3,258 \text{ g/dL} \\ \text{PK} &= 3,258 \times 6,25 \\ &= 20,36 \% \end{aligned}$$

$$\begin{aligned} 13. \quad \text{P3U1} &= \frac{0,184-0}{0,361} \times 6 \text{ g/dL} &&= 3,058 \text{ g/dL} \\ \text{PK} &= 3,058 \times 6,25 \\ &= 19,11 \% \end{aligned}$$

$$\begin{aligned} 14. \quad \text{P3U2} &= \frac{0,190-0}{0,361} \times 6 \text{ g/dL} &&= 3,158 \text{ g/dL} \\ \text{PK} &= 3,158 \times 6,25 \\ &= 19,74 \% \end{aligned}$$

$$\begin{aligned} 15. \quad \text{P3U3} &= \frac{0,183-0}{0,361} \times 6 \text{ g/dL} &&= 3,042 \text{ g/dL} \\ \text{PK} &= 3,042 \times 6,25 \\ &= 19,01 \% \end{aligned}$$

$$\begin{aligned} 16. \quad \text{P3U4} &= \frac{0,185-0}{0,361} \times 6 \text{ g/dL} &&= 3,075 \text{ g/dL} \\ \text{PK} &= 3,075 \times 6,25 \end{aligned}$$

$$= 19,22 \%$$

$$\begin{aligned} 17. \quad \text{P4U1} &= \frac{0,143-0}{0,361} \times 6 \text{ g/dL} && = 2,377 \text{ g/dL} \\ \text{PK} &= 2,377 \times 6,25 \\ &= 14,85 \% \end{aligned}$$

$$\begin{aligned} 18. \quad \text{P4U2} &= \frac{0,151-0}{0,361} \times 6 \text{ g/dL} && = 2,509 \text{ g/dL} \\ \text{PK} &= 2,509 \times 6,25 \\ &= 15,69 \% \end{aligned}$$

$$\begin{aligned} 19. \quad \text{P4U3} &= \frac{0,196-0}{0,361} \times 6 \text{ g/dL} && = 3,276 \text{ g/dL} \\ \text{PK} &= 3,276 \times 6,25 \\ &= 20,47 \% \end{aligned}$$

$$\begin{aligned} 20. \quad \text{P4U4} &= \frac{0,195-0}{0,361} \times 6 \text{ g/dL} && = 3,259 \text{ g/dL} \\ \text{PK} &= 3,259 \times 6,25 \\ &= 20,37 \% \end{aligned}$$

Lampiran 4. Kadar Lemak Hati Broiler

No	Kode Sampel	Berat				Kadar Lemak Kasar
		Selongsong + Hekter	Sampel (B-A)	Selongsong + Sampel + Hekter (C)	Selongsong + Sampel Akhir + Hekter (D)	
			gram.....	%....
1	P0U1	0,6053	1,1533	1,7586	1,7125	3,99
2	P0U2	0,5878	1,1803	1,7681	1,7242	3,71
3	P0U3	0,6236	1,2542	1,8778	1,8395	3,05
4	P0U4	0,5556	1,2882	1,8438	1,7999	3,40
5	P1U1	0,5787	1,3087	1,8874	1,8611	2,00
6	P1U2	0,5842	1,1458	1,7300	1,7001	2,60
7	P1U3	0,5854	1,2128	1,7982	1,7742	1,97
8	P1U4	0,5553	1,2475	1,8028	1,7672	2,85
9	P2U1	0,5567	1,2095	1,7662	1,7412	2,06
10	P2U2	0,6053	1,2541	1,8594	1,8101	3,93
11	P2U3	0,5234	1,2062	1,7296	1,6999	2,46
12	P2U4	0,5942	1,2340	1,8282	1,7886	3,20
13	P3U1	0,5356	1,2606	1,7962	1,7703	2,05
14	P3U2	0,5655	1,2414	1,8069	1,7835	1,88
15	P3U3	0,6004	1,2876	1,8880	1,8661	1,70
16	P3U4	0,6132	1,2848	1,8980	1,8701	2,17
17	P4U1	0,5911	1,2768	1,8679	1,8302	2,95
18	P4U2	0,5940	1,2495	1,8435	1,8063	3,97
19	P4U3	0,6370	1,2583	1,8953	1,8459	3,92
20	P4U4	0,5574	1,2775	1,8349	1,7876	3,70

$$\text{Kadar Lemak Kasar (\%)} = \frac{(C-D)}{(B-A)} \times 100$$

$$\begin{aligned} 1. \quad \text{P0U1} &= \frac{1,7586-1,7125}{1,1533} \times 100 \\ &= 4,00 \% \end{aligned}$$

$$\begin{aligned} 2. \quad \text{P0U2} &= \frac{1,7681-1,7242}{1,1803} \times 100 \\ &= 3,72 \% \end{aligned}$$

$$\begin{aligned} 3. \quad P0U3 &= \frac{1,8778-1,8395}{1,2542} \times 100 \\ &= 3,05 \% \end{aligned}$$

$$\begin{aligned} 4. \quad P0U4 &= \frac{1,8438-1,7999}{1,2882} \times 100 \\ &= 3,41 \% \end{aligned}$$

$$\begin{aligned} 5. \quad P1U1 &= \frac{1,8874-1,8611}{1,3087} \times 100 \\ &= 2,01 \% \end{aligned}$$

$$\begin{aligned} 6. \quad P1U2 &= \frac{1,7300-1,7001}{1,1458} \times 100 \\ &= 2,61 \% \end{aligned}$$

$$\begin{aligned} 7. \quad P1U3 &= \frac{1,7982-1,7742}{1,2128} \times 100 \\ &= 1,98 \% \end{aligned}$$

$$\begin{aligned} 8. \quad P1U4 &= \frac{1,8028-1,7672}{1,2475} \times 100 \\ &= 2,85 \% \end{aligned}$$

$$\begin{aligned} 9. \quad P2U1 &= \frac{1,7662-1,7412}{1,2095} \times 100 \\ &= 2,07 \% \end{aligned}$$

$$\begin{aligned} 10. \quad P2U2 &= \frac{1,8594-1,8101}{1,2541} \times 100 \\ &= 3,93 \% \end{aligned}$$

$$\begin{aligned} 11. \quad P2U3 &= \frac{1,7296-1,6999}{1,2062} \times 100 \end{aligned}$$

$$= 2,46 \%$$

$$\begin{aligned} 12. \quad P2U4 &= \frac{1,8282-1,7886}{1,2340} \times 100 \\ &= 3,21 \% \end{aligned}$$

$$\begin{aligned} 13. \quad P3U1 &= \frac{1,7962-1,7703}{1,2606} \times 100 \\ &= 2,05 \% \end{aligned}$$

$$\begin{aligned} 14. \quad P3U2 &= \frac{1,8069-1,7835}{1,2414} \times 100 \\ &= 1,88 \% \end{aligned}$$

$$\begin{aligned} 15. \quad P3U3 &= \frac{1,8880-1,8661}{1,2876} \times 100 \\ &= 1,70 \% \end{aligned}$$

$$\begin{aligned} 16. \quad P3U4 &= \frac{1,8980-1,8701}{1,2848} \times 100 \\ &= 2,17 \% \end{aligned}$$

$$\begin{aligned} 17. \quad P4U1 &= \frac{1,8679-1,8302}{1,2768} \times 100 \\ &= 2,95 \% \end{aligned}$$

$$\begin{aligned} 18. \quad P4U2 &= \frac{1,8435 - 1,8063}{1,2495} \times 100 \\ &= 3,98 \% \end{aligned}$$

$$\begin{aligned} 19. \quad P4U3 &= \frac{1,8953-1,8459}{1,2583} \times 100 \\ &= 3,93 \% \end{aligned}$$

$$20. \quad P4U4 = \frac{1,8349-1,7876}{1,2775} \times 100$$

$$= 3,70 \%$$

Lampiran 5. Berat Basah dan Berat Kering Hati Broiler

Ulangan	Berat Basah Hati				
	P0	P1	P2	P3	P4
%				
1	11,40	19,60	14,20	12,60	14,30
2	13,80	14,70	17,20	16,40	16,60
3	16,00	18,80	10,30	21,60	11,60
4	17,50	17,30	17,40	15,50	12,30
Jumlah	58,70	70,40	59,10	66,10	54,80
Rata-rata	14,67	17,60	14,77	16,52	13,70
Standar Deviasi	2,66	2,16	3,32	3,75	2,25

Ulangan	Berat Kering Hati				
	P0	P1	P2	P33	P4
%				
1	2,46	4,74	3,71	3,13	3,55
2	3,28	3,71	4,31	4,71	4,38
3	3,82	4,34	2,28	5,71	3,14
4	4,52	4,63	4,33	3,83	2,91
Jumlah	14,08	17,42	14,63	17,38	13,98
Rata-rata	3,52	4,35	3,65	4,34	3,49
Standar Deviasi	0,87	0,46	0,96	1,12	0,65

Lampiran 6. Koefisien Variasi Bobot Badan Awal DOC

Ulangan	Bobot Badan				
	P0	P1	P2	P3	P4
gram.....				
1	44	49	50	43	48
2	47	50	48	43	50
3	46	44	42	46	49
4	48	48	42	43	45
Jumlah	185	191	182	175	192
Rata-rata	46,25	47,75	45,5	43,75	48

Koefisien Keragaman:

$$\sum x = 925$$

$$n = 20$$

$$\sum \text{Rata-rata} = 46,25$$

$$\sum (x - \bar{x})^2 = 149,75$$

$$Sd = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}$$

$$= \sqrt{\frac{149,75}{19}}$$

$$= \sqrt{7,8815}$$

$$= 2,81$$

$$KV = \frac{Sd}{\bar{x}} \times 100 \%$$

$$= \frac{2,81}{46,25} \times 100 \%$$

$$= 6,07 \%$$

Koefisien Variasi (KV) kurang dari 10%, sehingga bobot badan awal ayam broiler dapat dikategorikan seragam.

Lampiran 7. Dokumentasi Analisis Kadar Protein dan Lemak Hati



Gambar 1. Sampel Hati Kering Oven



Gambar 2. Penumbukan Sampel Hati



Gambar 3. Penimbangan Sampel Hati



Gambar 4. Kertas Saring + Sampel + Hekter



Gambar 5. Proses Ekstraksi Soxhlet



Gambar 6. Penimbangan Sampel Kering Oven



Gambar 7. Pemisahan Cairan dan Padatan Hasil Ekstraksi Eter



Gambar 8. Cairan Hasil Ekstraksi



Gambar 9. Pemasukan Reagen Total Protein pada Sampel



Gambar 10. Homogenisasi Sampel dengan Reagen



Gambar 11. Sampel + Reagen



Gambar 12. Spektrofotometer