

LAMPIRAN

Lampiran 1. Uji Divusi

| No | Isolat | ulangan | Data total zona | | |
|----|--------|---------|-----------------|------------------------|----------------------|
| | | | vibrio harveyi | vibrio parahemoliticus | vibrio alginoliticus |
| 1 | UP.3 | u1 | 9,87 | | 12,89 |
| | | u2 | 10,56 | | 13,10 |
| | | u3 | 11,06 | | 13,30 |
| 2 | UP.4 | u1 | | 11,72 | 10,30 |
| | | u2 | | 12,32 | 10,14 |
| | | u3 | | 10,74 | 11,04 |
| 3 | UP.5 | u1 | 10,94 | | |
| | | u2 | 11,89 | | |
| | | u3 | 11,35 | | |
| 4 | UP.7 | u1 | | | 20,76 |
| | | u2 | | | 21,10 |
| | | u3 | | | 21,43 |
| 5 | UP.8 | u1 | 11,88 | 26,71 | |
| | | u2 | 9,61 | 23,27 | |
| | | u3 | 11,20 | 24,41 | |
| 6 | UP.13 | u1 | 11,99 | | |
| | | u2 | 13,24 | | |
| | | u3 | 13,75 | | |
| 7 | UP.15 | u1 | | 13,57 | |
| | | u2 | | 12,71 | |
| | | u3 | | 14,21 | |
| 8 | UP.19 | u1 | | 19,36 | |
| | | u2 | | 20,08 | |
| | | u3 | | 17,54 | |
| 9 | UP.20 | u1 | 13,36 | | |
| | | u2 | 12,17 | | |
| | | u3 | 12,25 | | |
| 10 | UP.25 | u1 | | 12,13 | |
| | | u2 | | 12,19 | |
| | | u3 | | 13,17 | |
| 11 | UP.28 | u1 | 13,96 | | 14,39 |
| | | u2 | 14,04 | | 15,92 |
| | | u3 | 14,29 | | 15,87 |
| 12 | UP.29 | u1 | 13,45 | | |
| | | u2 | 14,25 | | |
| | | u3 | 13,38 | | |

| No | Isolat | ulangan | Zona hambatan | | |
|----|--------|---------|----------------|------------------------|----------------------|
| | | | vibrio harveyi | vibrio parahemoliticus | vibrio alginoliticus |
| 1 | UP.3 | u1 | 1,87 | | 4,89 |
| | | u2 | 2,56 | | 5,10 |
| | | u3 | 3,06 | | 5,30 |
| 2 | UP.4 | u1 | | 3,72 | 2,30 |
| | | u2 | | 4,32 | 2,14 |
| | | u3 | | 2,74 | 3,04 |
| 3 | UP.5 | u1 | 2,94 | | |
| | | u2 | 3,89 | | |
| | | u3 | 3,35 | | |
| 4 | UP.7 | u1 | | | 12,76 |
| | | u2 | | | 13,10 |
| | | u3 | | | 13,43 |
| 5 | UP.8 | u1 | 3,88 | 18,71 | |
| | | u2 | 1,61 | 15,27 | |
| | | u3 | 3,20 | 16,41 | |
| 6 | UP.13 | u1 | 3,99 | | |
| | | u2 | 5,24 | | |
| | | u3 | 5,75 | | |
| 7 | UP.15 | u1 | | 5,57 | |
| | | u2 | | 4,71 | |
| | | u3 | | 6,21 | |
| 8 | UP.19 | u1 | | 11,36 | |
| | | u2 | | 12,08 | |
| | | u3 | | 9,54 | |
| 9 | UP.20 | u1 | 5,36 | | |
| | | u2 | 4,17 | | |
| | | u3 | 4,25 | | |
| 10 | UP.25 | u1 | | 4,13 | |
| | | u2 | | 4,19 | |
| | | u3 | | 5,17 | |
| 11 | UP.28 | u1 | 5,96 | | 6,39 |
| | | u2 | 6,04 | | 7,92 |
| | | u3 | 6,29 | | 7,87 |
| 12 | UP.29 | u1 | 5,45 | | |
| | | u2 | 6,25 | | |
| | | u3 | 5,38 | | |

Lampiran 2. Uji normalitas data zona terhadap vibrio

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|-------------|---------------------------------|----|------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| zona thd vh | .168 | 21 | .127 | .939 | 21 | .210 |

a. Lilliefors Significance Correction

Lampiran 3. Uji aditivitas data zona terhadap vibrio menggunakan tukey

ANOVA with Tukey's Test for Nonadditivity

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|------------------------|--------------------|----|-------------|-------|------|
| Between People | | 113.215 | 20 | 5.661 | | |
| Within People | Between Items | 1.003 | 1 | 1.003 | 1.536 | .230 |
| | Residual Nonadditivity | 3.845 ^a | 1 | 3.845 | 7.932 | .011 |
| | Balance | 9.210 | 19 | .485 | | |
| | Total | 13.055 | 20 | .653 | | |
| Total | Total | 14.058 | 21 | .669 | | |
| Total | | 127.274 | 41 | 3.104 | | |

Grand Mean = 4,1545

a. Tukey's estimate of power to which observations must be raised to achieve additivity = 5,955.

Lampiran 4. Uji Homogenitas data zona terhadap vibrio

Test of Homogeneity of Variances

zona thd vh

| Levene Statistic | df1 | df2 | Sig. |
|------------------|-----|-----|------|
| 1.851 | 6 | 14 | .161 |

ANOVA

zona thd vh

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|----|-------------|--------|------|
| Between Groups | 35.337 | 6 | 5.889 | 11.891 | .000 |
| Within Groups | 6.934 | 14 | .495 | | |
| Total | 42.271 | 20 | | | |

Lampiran 5. Uji tukey data zona terhadap vibrio

zona thd vh

Tukey HSD

| simbion | N | Subset for alpha = 0.05 | | | |
|---------|---|-------------------------|--------|--------|--------|
| | | 1 | 2 | 3 | 4 |
| UP.3 | 3 | 2,4967 | | | |
| UP.8 | 3 | 2,8967 | 2,8967 | | |
| UP.5 | 3 | 3,3933 | 3,3933 | 3,3933 | |
| UP.20 | 3 | | 4,5933 | 4,5933 | 4,5933 |
| UP.13 | 3 | | | 4,9933 | 4,9933 |
| UP.29 | 3 | | | | 5,6933 |
| UP.28 | 3 | | | | 6,0967 |
| Sig. | | .707 | .112 | .147 | .193 |

Means for groups in homogeneous subsets are displayed.

Lampiran 6. Uji normalitas data zona terhadap vibrio

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|-------------|---------------------------------|----|------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| zona thd vh | .253 | 15 | .098 | .853 | 15 | .089 |

a. Lilliefors Significance Correction

Lampiran 7. Uji aditivitas data zona terhadap vibrio

ANOVA with Tukey's Test for Nonadditivity

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|---------------|----------------------|----|-------------|--------|------|
| Between People | | 195.219 | 14 | 13.944 | | |
| Within People | Between Items | 208.719 | 1 | 208.719 | 13.331 | .003 |
| | Residual | 160.861 ^a | 1 | 160.861 | 35.846 | .000 |
| | Balance | 58.338 | 13 | 4.488 | | |
| | Total | 219.199 | 14 | 15.657 | | |
| Total | | 427.918 | 15 | 28.528 | | |
| Total | | 623.138 | 29 | 21.488 | | |

Grand Mean = 5,6377

a. Tukey's estimate of power to which observations must be raised to achieve additivity = -,940.

Lampiran 8. Uji homogenitas data zona terhadap vibrio

Test of Homogeneity of Variances

zona thd vh

| Levene Statistic | df1 | df2 | Sig. |
|------------------|-----|-----|------|
| 1.461 | 4 | 10 | .285 |

ANOVA

zona thd vh

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|----|-------------|--------|------|
| Between Groups | 371.763 | 4 | 92.941 | 73.438 | .000 |
| Within Groups | 12.656 | 10 | 1.266 | | |
| Total | 384.419 | 14 | | | |

zona thd vp

Tukey HSD

| simbi on | N | Subset for alpha = 0.05 | | |
|----------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| UP.4 | 3 | 3,5933 | | |
| UP.25 | 3 | 4,4967 | | |
| UP.15 | 3 | 5,4967 | | |
| UP.19 | 3 | | 10,9933 | |
| UP.8 | 3 | | | 16,7967 |
| Sig. | | .302 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Lampiran 9. Uji normalitas data zona terhadap vibrio

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|-------------|---------------------------------|----|-------------------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| zona thd vh | .169 | 12 | .200 [*] | .884 | 12 | .098 |

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Lampiran 10. Uji aditivitas dengan tukey zona terhadap vibrio

ANOVA with Tukey's Test for Nonadditivity

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|---------------------|----|-------------|--------|------|
| Between People | 126.763 | 11 | 11.524 | | |
| Within People | | | | | |
| Between Items | 122.582 | 1 | 122.582 | 18.152 | .001 |
| Residual | 57.700 ^a | 1 | 57.700 | 34.794 | .000 |
| Balance | 16.583 | 10 | 1.658 | | |
| Total | 74.283 | 11 | 6.753 | | |
| Total | 196.866 | 12 | 16.405 | | |
| Total | 323.629 | 23 | 14.071 | | |

Grand Mean = 4,7600

a. Tukey's estimate of power to which observations must be raised to achieve additivity = -,421.

Lampiran 11. Uji homogenitas data zona terhadap vibriosis

Test of Homogeneity of Variances

zona thd vh

| Levene Statistic | df1 | df2 | Sig. |
|------------------|-----|-----|------|
| 3.919 | 3 | 8 | .054 |

ANOVA

zona thd vh

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|----|-------------|---------|------|
| Between Groups | 183.766 | 3 | 61.255 | 214.849 | .000 |
| Within Groups | 2.281 | 8 | .285 | | |
| Total | 186.046 | 11 | | | |

zona thd va

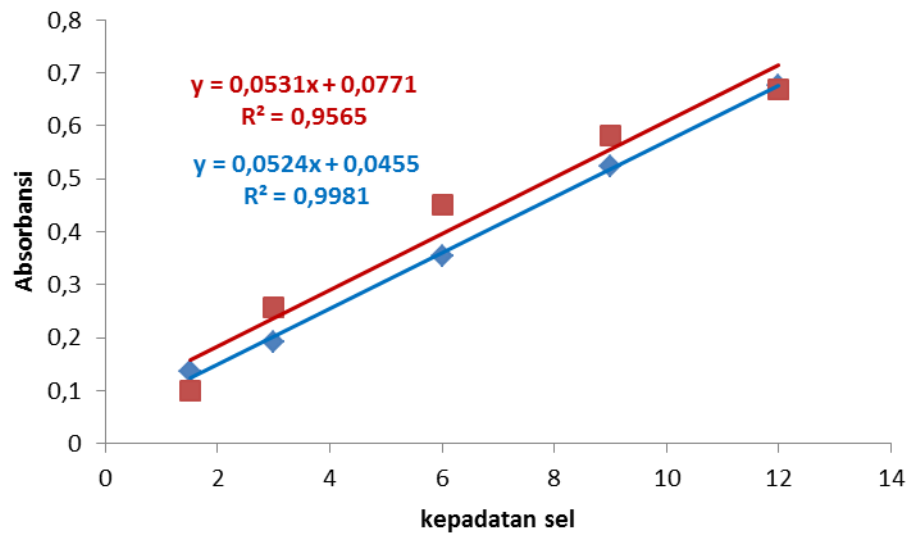
Tukey HSD

| simblon | N | Subset for alpha = 0.05 | | | |
|---------|---|-------------------------|--------|--------|---------|
| | | 1 | 2 | 3 | 4 |
| UP.4 | 3 | 2,4933 | | | |
| UP.3 | 3 | | 5,0967 | | |
| UP.28 | 3 | | | 7,3933 | |
| UP.7 | 3 | | | | 13,0967 |
| Sig. | | 1.000 | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Lampiran 12. Standart Mc Farland

| $\times 10^8$ | Abs | standar |
|---------------|-------|---------|
| 1,5 | 0,137 | 0,100 |
| 3 | 0,191 | 0,257 |
| 6 | 0,353 | 0,451 |
| 9 | 0,522 | 0,582 |
| 12 | 0,676 | 0,669 |



Lampiran 13. Data OD isolate bakteri simbion

| Perlakuan | isolat | ulangan | Data OD jam ke- | | | | | | | | | |
|-------------|---------|---------|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | |
| Kontrol (-) | UP.7 | u1 | 0,095 | 0,152 | 0,472 | 0,768 | 0,962 | 1,204 | 1,337 | 1,415 | 1,406 | |
| | | u2 | 0,086 | 0,132 | 0,433 | 0,659 | 0,901 | 1,018 | 1,416 | 1,475 | 1,419 | |
| | | u3 | 0,092 | 0,146 | 0,464 | 0,731 | 0,872 | 1,109 | 1,155 | 1,353 | 1,335 | |
| | | x | 0,091 | 0,143 | 0,456 | 0,719 | 0,912 | 1,110 | 1,303 | 1,414 | 1,387 | |
| | | sd | 0,005 | 0,010 | 0,021 | 0,055 | 0,046 | 0,093 | 0,134 | 0,061 | 0,045 | |
| | | UP.8 | u1 | 0,089 | 0,143 | 0,340 | 0,485 | 0,690 | 1,016 | 0,991 | 1,109 | 0,939 |
| | u2 | 0,089 | 0,128 | 0,324 | 0,497 | 0,760 | 0,943 | 0,977 | 1,105 | 0,917 | | |
| | u3 | 0,085 | 0,138 | 0,348 | 0,515 | 0,728 | 0,930 | 1,007 | 1,029 | 0,951 | | |
| | x | 0,088 | 0,136 | 0,337 | 0,499 | 0,726 | 0,963 | 0,992 | 1,081 | 0,936 | | |
| | sd | 0,002 | 0,008 | 0,012 | 0,015 | 0,035 | 0,046 | 0,015 | 0,045 | 0,017 | | |
| | UP.28 | u1 | 0,088 | 0,130 | 0,206 | 0,411 | 0,535 | 0,564 | 0,622 | 0,474 | 0,469 | |
| | u2 | 0,085 | 0,136 | 0,221 | 0,379 | 0,484 | 0,556 | 0,598 | 0,462 | 0,431 | | |
| | u3 | 0,086 | 0,141 | 0,202 | 0,396 | 0,487 | 0,529 | 0,602 | 0,452 | 0,462 | | |
| | x | 0,086 | 0,136 | 0,210 | 0,395 | 0,502 | 0,550 | 0,607 | 0,463 | 0,454 | | |
| | sd | 0,002 | 0,006 | 0,010 | 0,016 | 0,029 | 0,018 | 0,013 | 0,011 | 0,020 | | |
| | Glukosa | UP.7 | u1 | 0,092 | 0,124 | 0,387 | 0,502 | 0,559 | 0,794 | 0,789 | 0,746 | 0,678 |
| | | | u2 | 0,089 | 0,119 | 0,382 | 0,495 | 0,568 | 0,875 | 0,754 | 0,694 | 0,662 |
| | | | u3 | 0,087 | 0,120 | 0,401 | 0,514 | 0,568 | 0,822 | 0,744 | 0,732 | 0,642 |
| x | | | 0,089 | 0,121 | 0,390 | 0,504 | 0,565 | 0,830 | 0,762 | 0,724 | 0,661 | |
| sd | | | 0,003 | 0,003 | 0,010 | 0,010 | 0,005 | 0,041 | 0,024 | 0,027 | 0,018 | |
| UP.8 | | | u1 | 0,088 | 0,139 | 0,287 | 0,560 | 0,864 | 0,950 | 1,292 | 1,097 | 1,019 |
| u2 | | 0,084 | 0,123 | 0,283 | 0,462 | 0,794 | 1,021 | 1,197 | 1,144 | 0,936 | | |
| u3 | | 0,084 | 0,134 | 0,305 | 0,531 | 0,783 | 0,874 | 1,181 | 1,092 | 0,999 | | |
| x | | 0,085 | 0,132 | 0,292 | 0,518 | 0,814 | 0,948 | 1,223 | 1,111 | 0,985 | | |
| sd | | 0,002 | 0,008 | 0,012 | 0,050 | 0,044 | 0,074 | 0,060 | 0,029 | 0,043 | | |
| UP.28 | | u1 | 0,092 | 0,124 | 0,242 | 0,512 | 0,743 | 0,911 | 0,862 | 0,816 | 0,686 | |
| u2 | | 0,088 | 0,129 | 0,241 | 0,498 | 0,681 | 0,871 | 0,782 | 0,755 | 0,714 | | |
| u3 | | 0,088 | 0,125 | 0,248 | 0,488 | 0,733 | 0,826 | 0,842 | 0,789 | 0,690 | | |
| x | | 0,089 | 0,126 | 0,244 | 0,499 | 0,719 | 0,869 | 0,829 | 0,787 | 0,697 | | |
| sd | | 0,002 | 0,003 | 0,004 | 0,012 | 0,033 | 0,043 | 0,042 | 0,031 | 0,015 | | |

| Perlakuan isolat ulangan | | | Data OD jam ke- | | | | | | | | | |
|--------------------------|--------|-------|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | |
| Fruktosa | UP.7 | u1 | 0,092 | 0,137 | 0,307 | 0,570 | 0,843 | 1,119 | 1,058 | 0,994 | 0,729 | |
| | | u2 | 0,089 | 0,133 | 0,273 | 0,584 | 0,839 | 0,896 | 1,034 | 1,034 | 0,709 | |
| | | u3 | 0,089 | 0,134 | 0,284 | 0,606 | 0,767 | 1,080 | 1,040 | 0,999 | 0,727 | |
| | | x | 0,090 | 0,135 | 0,288 | 0,587 | 0,816 | 1,032 | 1,044 | 1,009 | 0,722 | |
| | | sd | 0,002 | 0,002 | 0,017 | 0,018 | 0,043 | 0,119 | 0,012 | 0,022 | 0,011 | |
| | | UP.8 | u1 | 0,092 | 0,191 | 0,368 | 0,502 | 0,571 | 0,742 | 0,903 | 0,886 | 0,833 |
| | u2 | 0,089 | 0,190 | 0,368 | 0,495 | 0,549 | 0,725 | 0,891 | 0,841 | 0,791 | | |
| | u3 | 0,089 | 0,190 | 0,364 | 0,514 | 0,537 | 0,729 | 0,938 | 0,893 | 0,839 | | |
| | x | 0,090 | 0,190 | 0,367 | 0,504 | 0,552 | 0,732 | 0,911 | 0,873 | 0,821 | | |
| | sd | 0,002 | 0,001 | 0,002 | 0,010 | 0,017 | 0,009 | 0,024 | 0,028 | 0,026 | | |
| | UP.28 | u1 | 0,087 | 0,124 | 0,178 | 0,284 | 0,415 | 0,453 | 0,400 | 0,415 | 0,305 | |
| | u2 | 0,084 | 0,122 | 0,191 | 0,297 | 0,383 | 0,447 | 0,437 | 0,399 | 0,302 | | |
| | u3 | 0,084 | 0,127 | 0,169 | 0,254 | 0,378 | 0,438 | 0,414 | 0,391 | 0,312 | | |
| | x | 0,085 | 0,124 | 0,179 | 0,278 | 0,392 | 0,446 | 0,417 | 0,402 | 0,306 | | |
| | sd | 0,002 | 0,003 | 0,011 | 0,022 | 0,020 | 0,008 | 0,019 | 0,012 | 0,005 | | |
| | Molase | UP.7 | u1 | 0,088 | 0,237 | 0,515 | 1,044 | 1,369 | 1,496 | 1,501 | 1,320 | 1,257 |
| | | | u2 | 0,087 | 0,236 | 0,469 | 1,015 | 1,410 | 1,432 | 1,401 | 1,362 | 1,224 |
| | | | u3 | 0,087 | 0,243 | 0,504 | 0,992 | 1,284 | 1,456 | 1,410 | 1,226 | 1,245 |
| x | | | 0,087 | 0,239 | 0,496 | 1,017 | 1,354 | 1,461 | 1,437 | 1,303 | 1,242 | |
| sd | | | 0,001 | 0,004 | 0,024 | 0,026 | 0,064 | 0,032 | 0,055 | 0,070 | 0,017 | |
| UP.8 | | | u1 | 0,086 | 0,293 | 0,730 | 0,967 | 1,344 | 1,353 | 1,162 | 0,849 | 0,782 |
| u2 | | 0,083 | 0,300 | 0,792 | 1,031 | 1,208 | 1,383 | 1,123 | 0,887 | 0,760 | | |
| u3 | | 0,084 | 0,310 | 0,727 | 1,078 | 1,215 | 1,321 | 1,227 | 0,902 | 0,780 | | |
| x | | 0,084 | 0,301 | 0,750 | 1,025 | 1,256 | 1,352 | 1,171 | 0,879 | 0,774 | | |
| sd | | 0,002 | 0,009 | 0,037 | 0,056 | 0,077 | 0,031 | 0,053 | 0,027 | 0,012 | | |
| UP.28 | | u1 | 0,087 | 0,331 | 0,931 | 1,293 | 1,551 | 1,614 | 1,574 | 1,295 | 1,069 | |
| u2 | | 0,087 | 0,338 | 0,878 | 1,300 | 1,439 | 1,699 | 1,619 | 1,202 | 1,096 | | |
| u3 | | 0,087 | 0,307 | 0,892 | 1,356 | 1,522 | 1,591 | 1,491 | 1,209 | 1,129 | | |
| x | | 0,087 | 0,325 | 0,900 | 1,316 | 1,504 | 1,635 | 1,561 | 1,235 | 1,098 | | |
| sd | | 0,000 | 0,016 | 0,027 | 0,035 | 0,058 | 0,057 | 0,065 | 0,052 | 0,030 | | |

Lampiran 14. Data OD ($\times 10^8$) isolate bakteri simbion

| Perlakuan | isolat | ulangan | Cell Density ($\times 10^8$), Cell = (OD - 0,045) / 0,052 | | | | | | | | | |
|-------------|---------|---------|---|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| | | | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | |
| Kontrol (-) | UP.7 | u1 | 0,962 | 2,058 | 8,212 | 13,904 | 17,635 | 22,288 | 24,846 | 26,346 | 26,173 | |
| | | u2 | 0,788 | 1,673 | 7,462 | 11,808 | 16,462 | 18,712 | 26,365 | 27,500 | 26,423 | |
| | | u3 | 0,904 | 1,942 | 8,058 | 13,192 | 15,904 | 20,462 | 21,346 | 25,154 | 24,808 | |
| | | x | 0,885 | 1,891 | 7,910 | 12,968 | 16,667 | 20,487 | 24,186 | 26,333 | 25,801 | |
| | | sd | 0,088 | 0,197 | 0,396 | 1,066 | 0,883 | 1,789 | 2,574 | 1,173 | 0,870 | |
| | | UP.8 | u1 | 0,846 | 1,885 | 5,673 | 8,462 | 12,404 | 18,673 | 18,192 | 20,462 | 17,192 |
| | u2 | 0,846 | 1,596 | 5,365 | 8,692 | 13,750 | 17,269 | 17,923 | 20,385 | 16,769 | | |
| | u3 | 0,769 | 1,788 | 5,827 | 9,038 | 13,135 | 17,019 | 18,500 | 18,923 | 17,423 | | |
| | x | 0,821 | 1,756 | 5,622 | 8,731 | 13,096 | 17,654 | 18,205 | 19,923 | 17,128 | | |
| | sd | 0,044 | 0,147 | 0,235 | 0,290 | 0,674 | 0,891 | 0,289 | 0,867 | 0,332 | | |
| | UP.28 | u1 | 0,827 | 1,635 | 3,096 | 7,038 | 9,423 | 9,981 | 11,096 | 8,250 | 8,154 | |
| | u2 | 0,769 | 1,750 | 3,385 | 6,423 | 8,442 | 9,827 | 10,635 | 8,019 | 7,423 | | |
| | u3 | 0,788 | 1,846 | 3,019 | 6,750 | 8,500 | 9,308 | 10,712 | 7,827 | 8,019 | | |
| | x | 0,795 | 1,744 | 3,167 | 6,737 | 8,788 | 9,705 | 10,814 | 8,032 | 7,865 | | |
| | sd | 0,029 | 0,106 | 0,193 | 0,308 | 0,550 | 0,353 | 0,247 | 0,212 | 0,389 | | |
| | Glukosa | UP.7 | u1 | 0,904 | 1,519 | 6,577 | 8,788 | 9,885 | 14,404 | 14,308 | 13,481 | 12,173 |
| | | | u2 | 0,846 | 1,423 | 6,481 | 8,654 | 10,058 | 15,962 | 13,635 | 12,481 | 11,865 |
| | | | u3 | 0,808 | 1,442 | 6,846 | 9,019 | 10,058 | 14,942 | 13,442 | 13,212 | 11,481 |
| x | | | 0,853 | 1,462 | 6,635 | 8,821 | 10,000 | 15,103 | 13,795 | 13,058 | 11,840 | |
| sd | | | 0,048 | 0,051 | 0,189 | 0,185 | 0,100 | 0,791 | 0,454 | 0,517 | 0,347 | |
| UP.8 | | | u1 | 0,827 | 1,808 | 4,654 | 9,904 | 15,750 | 17,404 | 23,981 | 20,231 | 18,731 |
| u2 | | 0,750 | 1,500 | 4,577 | 8,019 | 14,404 | 18,769 | 22,154 | 21,135 | 17,135 | | |
| u3 | | 0,750 | 1,712 | 5,000 | 9,346 | 14,192 | 15,942 | 21,846 | 20,135 | 18,346 | | |
| x | | 0,776 | 1,673 | 4,744 | 9,090 | 14,782 | 17,372 | 22,660 | 20,500 | 18,071 | | |
| sd | | 0,044 | 0,157 | 0,225 | 0,968 | 0,845 | 1,414 | 1,154 | 0,552 | 0,833 | | |
| UP.28 | | u1 | 0,904 | 1,519 | 3,788 | 8,981 | 13,423 | 16,654 | 15,712 | 14,827 | 12,327 | |
| u2 | | 0,827 | 1,615 | 3,769 | 8,712 | 12,231 | 15,885 | 14,173 | 13,654 | 12,865 | | |
| u3 | | 0,827 | 1,538 | 3,904 | 8,519 | 13,231 | 15,019 | 15,327 | 14,308 | 12,404 | | |
| x | | 0,853 | 1,558 | 3,821 | 8,737 | 12,962 | 15,853 | 15,071 | 14,263 | 12,532 | | |
| sd | | 0,044 | 0,051 | 0,073 | 0,232 | 0,640 | 0,818 | 0,801 | 0,588 | 0,291 | | |

| Perlakuan isolat ulangan | | | Cell Density ($\times 10^8$), Cell = (OD - 0,045) / 0,052 | | | | | | | | | |
|--------------------------|--------|-------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | |
| Fruktosa | UP.7 | u1 | 0,904 | 1,769 | 5,038 | 10,096 | 15,346 | 20,654 | 19,481 | 18,250 | 13,154 | |
| | | u2 | 0,846 | 1,692 | 4,385 | 10,365 | 15,269 | 16,365 | 19,019 | 19,019 | 12,769 | |
| | | u3 | 0,846 | 1,712 | 4,596 | 10,788 | 13,885 | 19,904 | 19,135 | 18,346 | 13,115 | |
| | | x | 0,865 | 1,724 | 4,673 | 10,417 | 14,833 | 18,974 | 19,212 | 18,538 | 13,013 | |
| | | sd | 0,033 | 0,040 | 0,334 | 0,349 | 0,823 | 2,290 | 0,240 | 0,419 | 0,212 | |
| | | UP.8 | u1 | 0,904 | 2,808 | 6,212 | 8,788 | 10,115 | 13,404 | 16,500 | 16,173 | 15,154 |
| | u2 | 0,846 | 2,788 | 6,212 | 8,654 | 9,692 | 13,077 | 16,269 | 15,308 | 14,346 | | |
| | u3 | 0,846 | 2,788 | 6,135 | 9,019 | 9,462 | 13,154 | 17,173 | 16,308 | 15,269 | | |
| | x | 0,865 | 2,795 | 6,186 | 8,821 | 9,756 | 13,212 | 16,647 | 15,929 | 14,923 | | |
| | sd | 0,033 | 0,011 | 0,044 | 0,185 | 0,332 | 0,171 | 0,470 | 0,543 | 0,503 | | |
| | UP.28 | u1 | 0,808 | 1,519 | 2,558 | 4,596 | 7,115 | 7,846 | 6,827 | 7,115 | 5,000 | |
| | u2 | 0,750 | 1,481 | 2,808 | 4,846 | 6,500 | 7,731 | 7,538 | 6,808 | 4,942 | | |
| | u3 | 0,750 | 1,577 | 2,385 | 4,019 | 6,404 | 7,558 | 7,096 | 6,654 | 5,135 | | |
| | x | 0,769 | 1,526 | 2,583 | 4,487 | 6,673 | 7,712 | 7,154 | 6,859 | 5,026 | | |
| | sd | 0,033 | 0,048 | 0,213 | 0,424 | 0,386 | 0,145 | 0,359 | 0,235 | 0,099 | | |
| | Molase | UP.7 | u1 | 0,827 | 3,692 | 9,038 | 19,212 | 25,462 | 27,904 | 28,000 | 24,519 | 23,308 |
| | | | u2 | 0,808 | 3,673 | 8,154 | 18,654 | 26,250 | 26,673 | 26,077 | 25,327 | 22,673 |
| | | | u3 | 0,808 | 3,808 | 8,827 | 18,212 | 23,827 | 27,135 | 26,250 | 22,712 | 23,077 |
| x | | | 0,814 | 3,724 | 8,673 | 18,692 | 25,179 | 27,237 | 26,776 | 24,186 | 23,019 | |
| sd | | | 0,011 | 0,073 | 0,462 | 0,501 | 1,236 | 0,622 | 1,064 | 1,339 | 0,321 | |
| UP.8 | | | u1 | 0,788 | 4,769 | 13,173 | 17,731 | 24,981 | 25,154 | 21,481 | 15,462 | 14,173 |
| u2 | | 0,731 | 4,904 | 14,365 | 18,962 | 22,365 | 25,731 | 20,731 | 16,192 | 13,750 | | |
| u3 | | 0,750 | 5,096 | 13,115 | 19,865 | 22,500 | 24,538 | 22,731 | 16,481 | 14,135 | | |
| x | | 0,756 | 4,923 | 13,551 | 18,853 | 23,282 | 25,141 | 21,647 | 16,045 | 14,019 | | |
| sd | | 0,029 | 0,164 | 0,706 | 1,071 | 1,473 | 0,596 | 1,010 | 0,525 | 0,234 | | |
| UP.28 | | u1 | 0,808 | 5,500 | 17,038 | 24,000 | 28,962 | 30,173 | 29,404 | 24,038 | 19,692 | |
| u2 | | 0,808 | 5,635 | 16,019 | 24,135 | 26,808 | 31,808 | 30,269 | 22,250 | 20,212 | | |
| u3 | | 0,808 | 5,038 | 16,288 | 25,212 | 28,404 | 29,731 | 27,808 | 22,385 | 20,846 | | |
| x | | 0,808 | 5,391 | 16,449 | 24,449 | 28,058 | 30,571 | 29,160 | 22,891 | 20,250 | | |
| sd | | 0,000 | 0,313 | 0,528 | 0,664 | 1,118 | 1,094 | 1,249 | 0,996 | 0,578 | | |

Lampiran 15. Data generasi, waktu generasi, dan kecepatan pertumbuhan isolate bakteri simbion

| Perlakuan | isolat | ulangan | C0 (cell.T0) | C1 (cell.T.opt) | ΔT | G | Tg | $\mu = (\ln C1 - \ln C0) / \Delta T$ |
|-------------|--------|---------|---------------|-----------------|------------|-------|-------|--------------------------------------|
| Kontrol (-) | UP.7 | u1 | 0,976 | 26,348 | 42 | 4,755 | 8,833 | 0,078 |
| | | u2 | 0,789 | 27,505 | 42 | 5,124 | 8,197 | 0,085 |
| | | u3 | 0,921 | 25,17 | 42 | 4,773 | 8,800 | 0,079 |
| | | x | 0,895 | 26,341 | 42 | 4,884 | 8,610 | 0,081 |
| | | sd | 0,096 | 1,168 | 0 | 0,208 | 0,358 | 0,0034 |
| | UP.8 | u1 | 0,851 | 20,462 | 42 | 4,588 | 9,154 | 0,076 |
| | | u2 | 0,848 | 20,39 | 42 | 4,588 | 9,154 | 0,076 |
| | | u3 | 0,787 | 18,924 | 42 | 4,588 | 9,154 | 0,076 |
| | | x | 0,829 | 19,925 | 42 | 4,588 | 9,154 | 0,076 |
| | | sd | 0,036 | 0,868 | 0 | 0,000 | 0,000 | 0,0000 |
| | UP.28 | u1 | 0,834 | 11,102 | 36 | 3,735 | 9,639 | 0,072 |
| | | u2 | 0,781 | 10,647 | 36 | 3,769 | 9,551 | 0,073 |
| | | u3 | 0,802 | 10,719 | 36 | 3,741 | 9,624 | 0,072 |
| | | x | 0,806 | 10,823 | 36 | 3,748 | 9,604 | 0,072 |
| | | sd | 0,027 | 0,245 | 0 | 0,018 | 0,047 | 0,0004 |
| Glukosa | UP.7 | u1 | 0,905 | 14,407 | 30 | 3,993 | 7,513 | 0,092 |
| | | u2 | 0,863 | 15,974 | 30 | 4,211 | 7,125 | 0,097 |
| | | u3 | 0,817 | 14,947 | 30 | 4,194 | 7,153 | 0,097 |
| | | x | 0,862 | 15,109 | 30 | 4,133 | 7,264 | 0,095 |
| | | sd | 0,044 | 0,796 | 0 | 0,121 | 0,216 | 0,0028 |
| | UP.8 | u1 | 0,84 | 23,985 | 36 | 4,836 | 7,444 | 0,093 |
| | | u2 | 0,755 | 22,165 | 36 | 4,876 | 7,383 | 0,094 |
| | | u3 | 0,759 | 21,85 | 36 | 4,848 | 7,426 | 0,093 |
| | | x | 0,785 | 22,667 | 36 | 4,853 | 7,418 | 0,093 |
| | | sd | 0,048 | 1,153 | 0 | 0,021 | 0,031 | 0,0004 |
| | UP.28 | u1 | 0,915 | 16,66 | 30 | 4,187 | 7,165 | 0,097 |
| | | u2 | 0,834 | 15,895 | 30 | 4,253 | 7,054 | 0,098 |
| | | u3 | 0,839 | 15,037 | 30 | 4,164 | 7,204 | 0,096 |
| | | x | 0,863 | 15,864 | 30 | 4,201 | 7,141 | 0,097 |
| | | sd | 0,045 | 0,812 | 0 | 0,046 | 0,078 | 0,0011 |

| Perlakuan | isolat | ulangan | C0 (cell.T0) | C1 (cell.T.opt) | ΔT | G | Tg | $\mu = (\ln C1 - \ln C0) / \Delta T$ |
|-----------|--------|---------|--------------|-----------------|------------|-------|--------|--------------------------------------|
| Fruktosa | UP.7 | u1 | 0,913 | 19,491 | 36 | 4,416 | 8,151 | 0,085 |
| | | u2 | 0,86 | 19,02 | 36 | 4,467 | 8,058 | 0,086 |
| | | u3 | 0,857 | 19,152 | 36 | 4,483 | 8,031 | 0,086 |
| | | x | 0,877 | 19,221 | 36 | 4,455 | 8,080 | 0,086 |
| | | sd | 0,032 | 0,243 | 0 | 0,035 | 0,063 | 0,0007 |
| | | UP.8 | u1 | 0,91 | 16,512 | 36 | 4,182 | 8,608 |
| | u2 | 0,853 | 16,273 | 36 | 4,254 | 8,462 | 0,082 | |
| | u3 | 0,858 | 17,191 | 36 | 4,325 | 8,324 | 0,083 | |
| | x | 0,874 | 16,659 | 36 | 4,254 | 8,465 | 0,082 | |
| | sd | 0,032 | 0,476 | 0 | 0,072 | 0,142 | 0,0014 | |
| | UP.28 | u1 | 0,82 | 7,856 | 30 | 3,260 | 9,201 | 0,075 |
| | u2 | 0,764 | 7,747 | 30 | 3,342 | 8,976 | 0,077 | |
| | u3 | 0,769 | 7,568 | 30 | 3,299 | 9,093 | 0,076 | |
| | x | 0,784 | 7,724 | 30 | 3,301 | 9,090 | 0,076 | |
| | sd | 0,031 | 0,145 | 0 | 0,041 | 0,113 | 0,0009 | |
| Molase | UP.7 | u1 | 0,831 | 27,921 | 30 | 5,071 | 5,916 | 0,117 |
| | | u2 | 0,811 | 26,678 | 30 | 5,040 | 5,952 | 0,116 |
| | | u3 | 0,817 | 27,135 | 30 | 5,054 | 5,936 | 0,117 |
| | | x | 0,820 | 27,245 | 30 | 5,055 | 5,935 | 0,117 |
| | | sd | 0,010 | 0,629 | 0 | 0,015 | 0,018 | 0,0004 |
| | | UP.8 | u1 | 0,792 | 25,163 | 30 | 4,990 | 6,012 |
| | u2 | 0,748 | 25,732 | 30 | 5,105 | 5,877 | 0,118 | |
| | u3 | 0,753 | 24,539 | 30 | 5,027 | 5,968 | 0,116 | |
| | x | 0,764 | 25,145 | 30 | 5,041 | 5,952 | 0,116 | |
| | sd | 0,024 | 0,597 | 0 | 0,059 | 0,069 | 0,0014 | |
| | UP.28 | u1 | 0,811 | 30,183 | 30 | 5,218 | 5,749 | 0,121 |
| | u2 | 0,816 | 31,82 | 30 | 5,286 | 5,676 | 0,122 | |
| | u3 | 0,823 | 29,735 | 30 | 5,176 | 5,796 | 0,120 | |
| | x | 0,817 | 30,579 | 30 | 5,227 | 5,740 | 0,121 | |
| | sd | 0,006 | 1,098 | 0 | 0,056 | 0,061 | 0,0013 | |

Lampiran 16. Uji normalitas dengan kolmogorov smirnov terhadap pertumbuhan bakteri

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----|---------------------------------|----|-------------------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| G | .185 | 12 | .200 [*] | .917 | 12 | .263 |
| Tg | .199 | 12 | .200 [*] | .886 | 12 | .106 |
| Kc | .222 | 12 | .104 | .844 | 12 | .130 |

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Lampiran 17. Uji tukey untuk data nonaditifitas terhadap pertumbuhan.

ANOVA with Tukey's Test for Nonadditivity

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|------------------------|--------------------|----|-------------|---------|------|
| Between People | | 3.785 | 11 | .344 | | |
| Within People | Between Items | 332.324 | 2 | 166.162 | 348.877 | .000 |
| | Residual Nonadditivity | 4.736 ^a | 1 | 4.736 | 17.323 | .000 |
| | Balance | 5.742 | 21 | .273 | | |
| | Total | 10.478 | 22 | .476 | | |
| Total | | 342.802 | 24 | 14.283 | | |
| Total | | 346.587 | 35 | 9.902 | | |

Grand Mean = 4,06614

a. Tukey's estimate of power to which observations must be raised to achieve additivity = -.497.

Lampiran 18. Uji homogenitas pada data pertumbuhan bakteri

Test of Homogeneity of Variances

| | Levene Statistic | df1 | df2 | Sig. |
|----|------------------|-----|-----|------|
| G | 8.212 | 3 | 8 | .080 |
| Tg | 8.366 | 3 | 8 | .075 |
| Kc | 6.649 | 3 | 8 | .145 |

ANOVA

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----|----------------|----------------|----|-------------|---------|------|
| G | Between Groups | 1.569 | 3 | .523 | 35.189 | .000 |
| | Within Groups | .119 | 8 | .015 | | |
| | Total | 1.688 | 11 | | | |
| Tg | Between Groups | 12.215 | 3 | 4.072 | 90.827 | .000 |
| | Within Groups | .359 | 8 | .045 | | |
| | Total | 12.573 | 11 | | | |
| Kc | Between Groups | .002 | 3 | .001 | 130.529 | .000 |
| | Within Groups | .000 | 8 | .000 | | |
| | Total | .002 | 11 | | | |

Lampiran 19. Uji tukey data perlakuan sumber karbon

G

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-----------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| glukosa | 3 | 4,13267 | | |
| fruktosa | 3 | | 4,45533 | |
| K (-) | 3 | | | 4,88400 |
| molase | 3 | | | 5,05500 |
| Sig. | | 1.000 | 1.000 | .375 |

Means for groups in homogeneous subsets are displayed.

Tg

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-----------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| molase | 3 | 5,93467 | | |
| glukosa | 3 | | 7,26367 | |
| fruktosa | 3 | | | 8,08000 |
| K (-) | 3 | | | 8,61000 |
| Sig. | | 1.000 | 1.000 | .061 |

Means for groups in homogeneous subsets are displayed.

Kc

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-----------|---|-------------------------|--------|--------|
| | | 1 | 2 | 3 |
| K (-) | 3 | ,08067 | | |
| fruktosa | 3 | ,08567 | | |
| glukosa | 3 | | ,09533 | |
| molase | 3 | | | ,11667 |
| Sig. | | .128 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Lampiran 20. Uji normalitas kolmogorov-smirnov untuk data pertumbuhan

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----|---------------------------------|----|-------------------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| G | .187 | 12 | .200 [*] | .927 | 12 | .354 |
| Tg | .176 | 12 | .200 [*] | .871 | 12 | .068 |
| Kc | .210 | 12 | .150 | .835 | 12 | .238 |

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Lampiran 21. Uji tukey untuk data nonaditifitas terhadap pertumbuhan

ANOVA with Tukey's Test for Nonadditivity

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|------------------------|--------------------|----|-------------|---------|------|
| Between People | | 3.781 | 11 | .344 | | |
| Within People | Between Items | 356.291 | 2 | 178.146 | 264.552 | .000 |
| | Residual Nonadditivity | 7.134 ^a | 1 | 7.134 | 19.506 | .000 |
| | Balance | 7.680 | 21 | .366 | | |
| | Total | 14.815 | 22 | .673 | | |
| Total | | 371.106 | 24 | 15.463 | | |
| Total | | 374.887 | 35 | 10.711 | | |

Grand Mean = 4,17433

a. Tukey's estimate of power to which observations must be raised to achieve additivity = -,823.

Lampiran 22. Uji homogenitas data pertumbuhan

Test of Homogeneity of Variances

| | Levene Statistic | df1 | df2 | Sig. |
|----|------------------|-----|-----|------|
| G | 2.532 | 3 | 8 | .131 |
| Tg | 2.657 | 3 | 8 | .120 |
| Kc | 3.014 | 3 | 8 | .094 |

ANOVA

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----|----------------|----------------|----|-------------|---------|------|
| G | Between Groups | 1.051 | 3 | .350 | 156.030 | .000 |
| | Within Groups | .018 | 8 | .002 | | |
| | Total | 1.069 | 11 | | | |
| Tg | Between Groups | 17.472 | 3 | 5.824 | 899.735 | .000 |
| | Within Groups | .052 | 8 | .006 | | |
| | Total | 17.524 | 11 | | | |
| Kc | Between Groups | .003 | 3 | .001 | 1.036E3 | .000 |
| | Within Groups | .000 | 8 | .000 | | |
| | Total | .003 | 11 | | | |

Lampiran 23. Uji tukey data nilai pertumbuhan terhadap perlakuan sumber karbon

G

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | | |
|-----------|---|-------------------------|---------|---------|---------|
| | | 1 | 2 | 3 | 4 |
| fruktosa | 3 | 4,25367 | | | |
| K (-) | 3 | | 4,58800 | | |
| glukosa | 3 | | | 4,85333 | |
| molase | 3 | | | | 5,04067 |
| Sig. | | 1.000 | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Tg

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | | |
|-----------|---|-------------------------|---------|---------|---------|
| | | 1 | 2 | 3 | 4 |
| molase | 3 | 5,95233 | | | |
| glukosa | 3 | | 7,41767 | | |
| fruktosa | 3 | | | 8,46467 | |
| K (-) | 3 | | | | 9,15400 |
| Sig. | | 1.000 | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Kc

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | | |
|-----------|---|-------------------------|--------|--------|--------|
| | | 1 | 2 | 3 | 4 |
| K (-) | 3 | ,07600 | | | |
| fruktosa | 3 | | ,08200 | | |
| glukosa | 3 | | | ,09333 | |
| molase | 3 | | | | ,11633 |
| Sig. | | 1.000 | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Lampiran 24. Uji normalitas nilai pertumbuhan menggunakan kolmogorov-smirnov data perlakuan sumber karbon

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----|---------------------------------|----|-------------------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| G | .180 | 12 | .200 [*] | .872 | 12 | .068 |
| Tg | .248 | 12 | .039 | .840 | 12 | .074 |
| Kc | .264 | 12 | .021 | .818 | 12 | .094 |

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Lampiran 25. Uji anova nilai nonadifitas dengan uji tukey terhadap pertumbuhan data perlakuan sumber karbon

ANOVA with Tukey's Test for Nonadditivity

| | | Sum of Squares | df | Mean Square | F | Sig |
|----------------|---------------|---------------------|----|-------------|---------|------|
| Between People | | 3.356 | 11 | .305 | | |
| Within People | Between Items | 365.394 | 2 | 182.697 | 127.506 | .000 |
| | Residual | 12.813 ^a | 1 | 12.813 | 14.381 | .001 |
| | Balance | 18.710 | 21 | .891 | | |
| Total | | 31.523 | 22 | 1.433 | | |
| Total | | 396.917 | 24 | 16.538 | | |
| Total | | 400.272 | 35 | 11.436 | | |

Grand Mean = 4,03492

a. Tukey's estimate of power to which observations must be raised to achieve additivity = -1,475.

Lampiran 26. Uji homogenitas variansi dan anova nilai pertumbuhan data perlakuan sumber karbon

Test of Homogeneity of Variances

| | Levene Statistic | df1 | df2 | Sig. |
|----|------------------|-----|-----|------|
| G | .903 | 3 | 8 | .481 |
| Tg | .614 | 3 | 8 | .625 |
| Kc | .143 | 3 | 8 | .931 |

ANOVA

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----|----------------|----------------|----|-------------|---------|------|
| G | Between Groups | 6.124 | 3 | 2.041 | 1.130E3 | .000 |
| | Within Groups | .014 | 8 | .002 | | |
| | Total | 6.138 | 11 | | | |
| Tg | Between Groups | 28.686 | 3 | 9.562 | 1.555E3 | .000 |
| | Within Groups | .049 | 8 | .006 | | |
| | Total | 28.735 | 11 | | | |
| Kc | Between Groups | .005 | 3 | .002 | 1.810E3 | .000 |
| | Within Groups | .000 | 8 | .000 | | |
| | Total | .005 | 11 | | | |

Lampiran 27. Uji tukey terhadap homogenitas pertumbuhan data perlakuan sumber karbon

G

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | | |
|-----------|---|-------------------------|---------|---------|---------|
| | | 1 | 2 | 3 | 4 |
| fruktosa | 3 | 3,30033 | | | |
| K (-) | 3 | | 3,74833 | | |
| glukosa | 3 | | | 4,20133 | |
| molase | 3 | | | | 5,22667 |
| Sig. | | 1.000 | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Tg

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | | |
|-----------|---|-------------------------|---------|---------|---------|
| | | 1 | 2 | 3 | 4 |
| molase | 3 | 5,74033 | | | |
| glukosa | 3 | | 7,14100 | | |
| fruktosa | 3 | | | 9,09000 | |
| K (-) | 3 | | | | 9,60467 |
| Sig. | | 1.000 | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Kc

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | | |
|-----------|---|-------------------------|--------|--------|--------|
| | | 1 | 2 | 3 | 4 |
| K (-) | 3 | ,07233 | | | |
| fruktosa | 3 | | ,07600 | | |
| glukosa | 3 | | | ,09700 | |
| molase | 3 | | | | ,12100 |
| Sig. | | 1.000 | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Lampiran 28. Data OD perlakuan sumber nitrogen

| Perlakuan | isolat | ulangan | Data OD jam ke- | | | | | | | | | |
|-------------|-----------------|---------|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | |
| Kontrol (-) | UP.7 | u1 | 0,095 | 0,152 | 0,472 | 0,768 | 0,962 | 1,204 | 1,337 | 1,415 | 1,406 | |
| | | u2 | 0,086 | 0,132 | 0,433 | 0,659 | 0,901 | 1,018 | 1,416 | 1,475 | 1,419 | |
| | | u3 | 0,092 | 0,146 | 0,464 | 0,731 | 0,872 | 1,109 | 1,155 | 1,353 | 1,335 | |
| | | x | 0,091 | 0,143 | 0,456 | 0,719 | 0,912 | 1,110 | 1,303 | 1,414 | 1,387 | |
| | | sd | 0,005 | 0,010 | 0,021 | 0,055 | 0,046 | 0,093 | 0,134 | 0,061 | 0,045 | |
| | | UP.8 | u1 | 0,089 | 0,143 | 0,340 | 0,485 | 0,690 | 1,016 | 0,991 | 1,109 | 0,939 |
| | u2 | 0,089 | 0,128 | 0,324 | 0,497 | 0,760 | 0,943 | 0,977 | 1,105 | 0,917 | | |
| | u3 | 0,085 | 0,138 | 0,348 | 0,515 | 0,728 | 0,930 | 1,007 | 1,029 | 0,951 | | |
| | x | 0,088 | 0,136 | 0,337 | 0,499 | 0,726 | 0,963 | 0,992 | 1,081 | 0,936 | | |
| | sd | 0,002 | 0,008 | 0,012 | 0,015 | 0,035 | 0,046 | 0,015 | 0,045 | 0,017 | | |
| | UP.28 | u1 | 0,088 | 0,130 | 0,206 | 0,411 | 0,535 | 0,564 | 0,622 | 0,474 | 0,469 | |
| | u2 | 0,085 | 0,136 | 0,221 | 0,379 | 0,484 | 0,556 | 0,598 | 0,462 | 0,431 | | |
| | u3 | 0,086 | 0,141 | 0,202 | 0,396 | 0,487 | 0,529 | 0,602 | 0,452 | 0,462 | | |
| | x | 0,086 | 0,136 | 0,210 | 0,395 | 0,502 | 0,550 | 0,607 | 0,463 | 0,454 | | |
| | sd | 0,002 | 0,006 | 0,010 | 0,016 | 0,029 | 0,018 | 0,013 | 0,011 | 0,020 | | |
| | Amonium Clorida | UP.7 | u1 | 0,082 | 0,151 | 0,411 | 0,771 | 0,942 | 1,204 | 0,998 | 0,985 | 0,898 |
| | | | u2 | 0,088 | 0,161 | 0,425 | 0,718 | 0,903 | 1,029 | 1,050 | 0,954 | 0,835 |
| | | | u3 | 0,091 | 0,149 | 0,410 | 0,790 | 0,995 | 1,144 | 0,984 | 0,941 | 0,848 |
| x | | | 0,087 | 0,154 | 0,415 | 0,760 | 0,947 | 1,126 | 1,011 | 0,960 | 0,860 | |
| sd | | | 0,005 | 0,006 | 0,008 | 0,037 | 0,046 | 0,089 | 0,035 | 0,023 | 0,033 | |
| UP.8 | | | u1 | 0,086 | 0,141 | 0,312 | 0,624 | 0,804 | 1,071 | 1,021 | 0,789 | 0,728 |
| u2 | | 0,090 | 0,135 | 0,319 | 0,630 | 0,759 | 1,068 | 0,993 | 0,771 | 0,739 | | |
| u3 | | 0,087 | 0,135 | 0,300 | 0,615 | 0,786 | 0,994 | 0,990 | 0,813 | 0,744 | | |
| x | | 0,088 | 0,137 | 0,310 | 0,623 | 0,783 | 1,044 | 1,001 | 0,791 | 0,737 | | |
| sd | | 0,002 | 0,003 | 0,010 | 0,008 | 0,023 | 0,044 | 0,017 | 0,021 | 0,008 | | |
| UP.28 | | u1 | 0,091 | 0,159 | 0,415 | 0,624 | 0,832 | 0,938 | 0,895 | 0,870 | 0,792 | |
| u2 | | 0,083 | 0,150 | 0,424 | 0,630 | 0,841 | 0,944 | 0,922 | 0,805 | 0,817 | | |
| u3 | | 0,088 | 0,151 | 0,402 | 0,615 | 0,820 | 0,914 | 0,841 | 0,842 | 0,766 | | |
| x | | 0,087 | 0,153 | 0,414 | 0,623 | 0,831 | 0,932 | 0,886 | 0,839 | 0,792 | | |
| sd | | 0,004 | 0,005 | 0,011 | 0,008 | 0,011 | 0,016 | 0,041 | 0,033 | 0,026 | | |

Lampiran 29. Data nilai Od ($\times 10^8$) perlakuan sumber nitrogen

| Perlakuan | isolat | ulangan | Cell Density ($\times 10^8$), Cell = (OD - 0,045) / 0,052 | | | | | | | | |
|-----------------|--------|---------|---|-------|-------|--------|--------|--------|--------|--------|--------|
| | | | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 |
| Kontrol (-) | UP.7 | u1 | 0,976 | 2,070 | 8,217 | 13,915 | 17,641 | 22,297 | 24,852 | 26,348 | 26,177 |
| | | u2 | 0,789 | 1,674 | 7,470 | 11,818 | 16,480 | 18,713 | 26,372 | 27,505 | 26,442 |
| | | u3 | 0,921 | 1,951 | 8,058 | 13,199 | 15,911 | 20,476 | 21,357 | 25,170 | 24,808 |
| | | x | 0,895 | 1,898 | 7,915 | 12,977 | 16,677 | 20,495 | 24,194 | 26,341 | 25,809 |
| | | sd | 0,096 | 0,203 | 0,393 | 1,066 | 0,882 | 1,792 | 2,571 | 1,168 | 0,877 |
| | UP.8 | u1 | 0,851 | 1,900 | 5,689 | 8,474 | 12,411 | 18,690 | 18,196 | 20,462 | 17,197 |
| | | u2 | 0,848 | 1,614 | 5,381 | 8,698 | 13,752 | 17,272 | 17,937 | 20,390 | 16,787 |
| | | u3 | 0,787 | 1,803 | 5,833 | 9,045 | 13,141 | 17,026 | 18,507 | 18,924 | 17,430 |
| | | x | 0,829 | 1,772 | 5,634 | 8,739 | 13,101 | 17,663 | 18,213 | 19,925 | 17,138 |
| | | sd | 0,036 | 0,145 | 0,231 | 0,288 | 0,671 | 0,898 | 0,285 | 0,868 | 0,326 |
| | UP.28 | u1 | 0,834 | 1,649 | 3,103 | 7,050 | 9,439 | 9,991 | 11,102 | 8,264 | 8,154 |
| | | u2 | 0,781 | 1,764 | 3,391 | 6,441 | 8,453 | 9,846 | 10,647 | 8,025 | 7,430 |
| | | u3 | 0,802 | 1,847 | 3,026 | 6,756 | 8,503 | 9,326 | 10,719 | 7,837 | 8,034 |
| | | x | 0,806 | 1,753 | 3,173 | 6,749 | 8,798 | 9,721 | 10,823 | 8,042 | 7,873 |
| | | sd | 0,027 | 0,099 | 0,192 | 0,305 | 0,555 | 0,350 | 0,245 | 0,214 | 0,388 |
| Amonium Clorida | UP.7 | u1 | 0,718 | 2,055 | 7,056 | 13,974 | 17,260 | 22,292 | 18,337 | 18,083 | 16,406 |
| | | u2 | 0,837 | 2,246 | 7,310 | 12,945 | 16,502 | 18,933 | 19,331 | 17,483 | 15,200 |
| | | u3 | 0,888 | 2,004 | 7,021 | 14,330 | 18,287 | 21,145 | 18,064 | 17,248 | 15,458 |
| | | x | 0,814 | 2,102 | 7,129 | 13,750 | 17,350 | 20,790 | 18,577 | 17,605 | 15,688 |
| | | sd | 0,087 | 0,128 | 0,158 | 0,719 | 0,896 | 1,707 | 0,667 | 0,431 | 0,635 |
| | UP.8 | u1 | 0,795 | 1,865 | 5,139 | 11,142 | 14,606 | 19,744 | 18,788 | 14,320 | 13,140 |
| | | u2 | 0,866 | 1,736 | 5,277 | 11,264 | 13,737 | 19,674 | 18,237 | 13,977 | 13,354 |
| | | u3 | 0,808 | 1,748 | 4,910 | 10,975 | 14,259 | 18,260 | 18,177 | 14,774 | 13,445 |
| | | x | 0,823 | 1,783 | 5,109 | 11,127 | 14,201 | 19,226 | 18,401 | 14,357 | 13,313 |
| | | sd | 0,038 | 0,071 | 0,185 | 0,145 | 0,437 | 0,837 | 0,337 | 0,400 | 0,157 |
| | UP.28 | u1 | 0,890 | 2,196 | 7,126 | 11,135 | 15,147 | 17,179 | 16,364 | 15,870 | 14,367 |
| | | u2 | 0,737 | 2,033 | 7,303 | 11,257 | 15,313 | 17,289 | 16,873 | 14,618 | 14,849 |
| | | u3 | 0,841 | 2,046 | 6,879 | 10,969 | 14,921 | 16,723 | 15,316 | 15,331 | 13,867 |
| | | x | 0,823 | 2,092 | 7,103 | 11,120 | 15,127 | 17,064 | 16,184 | 15,273 | 14,361 |
| | | sd | 0,078 | 0,091 | 0,213 | 0,145 | 0,197 | 0,300 | 0,794 | 0,628 | 0,491 |

| Perlakuan | isolat | ulangan | Cell Density ($\times 10^8$), Cell = (OD - 0,045) / 0,052 | | | | | | | | | |
|----------------|--------|---------|---|-------|-------|--------|--------|--------|--------|--------|--------|-------|
| | | | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | |
| Amonium Nitrat | UP.7 | u1 | 0,864 | 1,041 | 4,208 | 11,974 | 16,250 | 18,282 | 19,782 | 19,127 | 16,448 | |
| | | u2 | 0,754 | 1,123 | 4,148 | 13,292 | 16,013 | 20,013 | 18,480 | 17,980 | 16,051 | |
| | | u3 | 0,832 | 1,146 | 4,280 | 11,923 | 17,035 | 17,459 | 17,842 | 18,287 | 16,162 | |
| | | x | 0,817 | 1,103 | 4,212 | 12,396 | 16,433 | 18,585 | 18,701 | 18,465 | 16,220 | |
| | | sd | 0,057 | 0,055 | 0,066 | 0,776 | 0,535 | 1,304 | 0,989 | 0,594 | 0,205 | |
| | | UP.8 | u1 | 0,813 | 1,145 | 3,295 | 4,497 | 6,463 | 8,961 | 8,673 | 6,394 | 3,298 |
| | u2 | 0,818 | 1,211 | 3,315 | 4,418 | 6,503 | 9,247 | 8,422 | 6,368 | 3,491 | | |
| | u3 | 0,847 | 1,151 | 3,407 | 4,359 | 6,567 | 9,099 | 8,225 | 6,467 | 3,316 | | |
| | x | 0,826 | 1,169 | 3,339 | 4,425 | 6,511 | 9,102 | 8,440 | 6,410 | 3,368 | | |
| | sd | 0,018 | 0,036 | 0,060 | 0,069 | 0,052 | 0,143 | 0,225 | 0,051 | 0,107 | | |
| | UP.28 | u1 | 0,880 | 2,164 | 4,078 | 6,415 | 8,945 | 9,768 | 8,128 | 7,267 | 6,671 | |
| | u2 | 0,722 | 2,039 | 4,104 | 6,521 | 8,728 | 7,741 | 8,485 | 6,669 | 6,805 | | |
| | u3 | 0,841 | 2,032 | 4,285 | 6,677 | 9,136 | 9,413 | 7,765 | 7,065 | 6,310 | | |
| | x | 0,814 | 2,078 | 4,156 | 6,538 | 8,936 | 8,974 | 8,126 | 7,000 | 6,595 | | |
| | sd | 0,082 | 0,074 | 0,113 | 0,132 | 0,204 | 1,082 | 0,360 | 0,304 | 0,256 | | |
| | Urea | UP.7 | u1 | 0,820 | 1,153 | 6,135 | 10,952 | 11,522 | 14,128 | 12,410 | 8,351 | 7,746 |
| | | | u2 | 0,831 | 1,027 | 6,427 | 9,372 | 12,325 | 14,249 | 13,083 | 8,490 | 7,058 |
| | | | u3 | 0,799 | 1,056 | 5,740 | 10,330 | 12,910 | 14,058 | 12,226 | 8,825 | 7,632 |
| x | | | 0,817 | 1,079 | 6,101 | 10,218 | 12,252 | 14,145 | 12,573 | 8,555 | 7,479 | |
| sd | | | 0,016 | 0,066 | 0,345 | 0,796 | 0,697 | 0,097 | 0,451 | 0,244 | 0,369 | |
| UP.8 | | | u1 | 0,810 | 2,110 | 8,002 | 9,390 | 11,343 | 15,173 | 10,325 | 9,597 | 8,378 |
| u2 | | 0,811 | 2,102 | 8,257 | 9,082 | 11,719 | 15,110 | 10,078 | 9,501 | 8,256 | | |
| u3 | | 0,798 | 2,129 | 8,125 | 9,144 | 10,507 | 15,486 | 10,653 | 9,187 | 8,722 | | |
| x | | 0,806 | 2,114 | 8,128 | 9,205 | 11,190 | 15,256 | 10,352 | 9,428 | 8,452 | | |
| sd | | 0,007 | 0,014 | 0,128 | 0,163 | 0,620 | 0,201 | 0,288 | 0,214 | 0,242 | | |
| UP.28 | | u1 | 0,859 | 1,138 | 3,238 | 5,071 | 8,939 | 11,784 | 11,275 | 10,925 | 8,421 | |
| u2 | | 0,769 | 1,066 | 2,877 | 5,199 | 9,088 | 11,346 | 10,668 | 10,861 | 8,535 | | |
| u3 | | 0,832 | 1,062 | 3,176 | 5,098 | 9,447 | 11,308 | 11,186 | 10,396 | 8,549 | | |
| x | | 0,820 | 1,089 | 3,097 | 5,123 | 9,158 | 11,479 | 11,043 | 10,727 | 8,502 | | |
| sd | | 0,046 | 0,043 | 0,193 | 0,067 | 0,261 | 0,265 | 0,328 | 0,289 | 0,070 | | |

Lampiran 30. Data pertumbuhan perlakuan sumber nitrogen

| Perlakuan | isolat | ulangan | C0 (cell.T0) | C1 (cell.T.opt) | ΔT | G | Tg | $\mu = (\ln C1 - \ln C0) / \Delta T$ |
|-----------------|--------|---------|---------------|-----------------|------------|-------|-------|--------------------------------------|
| Kontrol (-) | UP.7 | u1 | 0,976 | 26,348 | 42 | 4,755 | 8,833 | 0,078 |
| | | u2 | 0,789 | 27,505 | 42 | 5,124 | 8,197 | 0,085 |
| | | u3 | 0,921 | 25,17 | 42 | 4,773 | 8,800 | 0,079 |
| | | x | 0,895 | 26,341 | 42 | 4,884 | 8,610 | 0,081 |
| | | sd | 0,096 | 1,168 | 0 | 0,208 | 0,358 | 0,0034 |
| | UP.8 | u1 | 0,851 | 20,462 | 42 | 4,588 | 9,154 | 0,076 |
| | | u2 | 0,848 | 20,39 | 42 | 4,588 | 9,154 | 0,076 |
| | | u3 | 0,787 | 18,924 | 42 | 4,588 | 9,154 | 0,076 |
| | | x | 0,829 | 19,925 | 42 | 4,588 | 9,154 | 0,076 |
| | | sd | 0,036 | 0,868 | 0 | 0,000 | 0,000 | 0,0000 |
| | UP.28 | u1 | 0,834 | 11,102 | 36 | 3,735 | 9,639 | 0,072 |
| | | u2 | 0,781 | 10,647 | 36 | 3,769 | 9,551 | 0,073 |
| | | u3 | 0,802 | 10,719 | 36 | 3,741 | 9,624 | 0,072 |
| | | x | 0,806 | 10,823 | 36 | 3,748 | 9,604 | 0,072 |
| | | sd | 0,027 | 0,245 | 0 | 0,018 | 0,047 | 0,0004 |
| Amonium Clorida | UP.7 | u1 | 0,718 | 22,292 | 30 | 4,957 | 6,052 | 0,115 |
| | | u2 | 0,837 | 18,933 | 30 | 4,500 | 6,667 | 0,104 |
| | | u3 | 0,888 | 21,145 | 30 | 4,574 | 6,559 | 0,106 |
| | | x | 0,814 | 20,790 | 30 | 4,677 | 6,426 | 0,108 |
| | | sd | 0,087 | 1,707 | 0 | 0,245 | 0,328 | 0,0057 |
| | UP.8 | u1 | 0,795 | 19,744 | 30 | 4,635 | 6,473 | 0,107 |
| | | u2 | 0,866 | 19,674 | 30 | 4,506 | 6,657 | 0,104 |
| | | u3 | 0,808 | 18,26 | 30 | 4,499 | 6,669 | 0,104 |
| | | x | 0,823 | 19,226 | 30 | 4,547 | 6,600 | 0,105 |
| | | sd | 0,038 | 0,837 | 0 | 0,077 | 0,110 | 0,0018 |
| | UP.28 | u1 | 0,89 | 17,179 | 30 | 4,271 | 7,024 | 0,099 |
| | | u2 | 0,737 | 17,289 | 30 | 4,552 | 6,590 | 0,105 |
| | | u3 | 0,841 | 16,723 | 30 | 4,314 | 6,954 | 0,100 |
| | | x | 0,823 | 17,064 | 30 | 4,379 | 6,856 | 0,101 |
| | | sd | 0,078 | 0,300 | 0 | 0,152 | 0,233 | 0,0035 |

| Perlakuan | isolat | ulangan | C0 (cell.T0) | C1 (cell.T.opt) | ΔT | G | Tg | $\mu = (\ln C1 - \ln C0) / \Delta T$ | |
|----------------|--------|---------|--------------|-----------------|------------|-------|--------|--------------------------------------|-------|
| Amonium Nitrat | UP.7 | u1 | 0,864 | 19,782 | 36 | 4,517 | 7,969 | 0,087 | |
| | | u2 | 0,754 | 18,48 | 36 | 4,616 | 7,799 | 0,089 | |
| | | u3 | 0,832 | 17,842 | 36 | 4,423 | 8,139 | 0,085 | |
| | | x | 0,817 | 18,701 | 36 | 4,519 | 7,969 | 0,087 | |
| | | sd | 0,057 | 0,989 | 0 | 0,096 | 0,170 | 0,0019 | |
| | | UP.8 | u1 | 0,813 | 8,9614 | 30 | 3,463 | 8,664 | 0,080 |
| | u2 | 0,818 | 9,2478 | 30 | 3,499 | 8,573 | 0,081 | | |
| | u3 | 0,847 | 9,0993 | 30 | 3,426 | 8,757 | 0,079 | | |
| | x | 0,826 | 9,103 | 30 | 3,463 | 8,665 | 0,080 | | |
| | sd | 0,018 | 0,143 | 0 | 0,037 | 0,092 | 0,0009 | | |
| | UP.28 | u1 | 0,88 | 9,768 | 30 | 3,473 | 8,638 | 0,080 | |
| | u2 | 0,722 | 7,741 | 30 | 3,423 | 8,765 | 0,079 | | |
| | u3 | 0,841 | 9,4135 | 30 | 3,485 | 8,609 | 0,081 | | |
| | x | 0,814 | 8,974 | 30 | 3,460 | 8,671 | 0,080 | | |
| | sd | 0,082 | 1,083 | 0 | 0,033 | 0,083 | 0,0008 | | |
| | Urea | UP.7 | u1 | 0,82 | 14,128 | 30 | 4,107 | 7,304 | 0,095 |
| | | | u2 | 0,831 | 14,249 | 30 | 4,100 | 7,317 | 0,095 |
| | | | u3 | 0,799 | 14,058 | 30 | 4,137 | 7,251 | 0,096 |
| x | | | 0,817 | 14,145 | 30 | 4,115 | 7,291 | 0,095 | |
| sd | | | 0,016 | 0,097 | 0 | 0,020 | 0,035 | 0,0005 | |
| UP.8 | | | u1 | 0,81 | 15,173 | 30 | 4,228 | 7,096 | 0,098 |
| u2 | | 0,811 | 15,11 | 30 | 4,220 | 7,109 | 0,097 | | |
| u3 | | 0,798 | 15,486 | 30 | 4,279 | 7,011 | 0,099 | | |
| x | | 0,806 | 15,256 | 30 | 4,242 | 7,072 | 0,098 | | |
| sd | | 0,007 | 0,201 | 0 | 0,032 | 0,053 | 0,0007 | | |
| UP.28 | | u1 | 0,859 | 11,784 | 30 | 3,778 | 7,940 | 0,087 | |
| u2 | | 0,769 | 11,346 | 30 | 3,883 | 7,725 | 0,090 | | |
| u3 | | 0,832 | 11,308 | 30 | 3,765 | 7,968 | 0,087 | | |
| x | | 0,820 | 11,479 | 30 | 3,809 | 7,878 | 0,088 | | |
| sd | | 0,046 | 0,265 | 0 | 0,065 | 0,133 | 0,0015 | | |

Lampiran 31. Uji normalitas nilai pertumbuhan menggunakan kolmogorov-smirnov data perlakuan sumber nitrogen

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----|---------------------------------|----|-------------------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| G | .145 | 12 | .200 [*] | .947 | 12 | .598 |
| Tg | .116 | 12 | .200 [*] | .961 | 12 | .798 |
| Kc | .139 | 12 | .200 [*] | .950 | 12 | .637 |

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Lampiran 32. Anova dengan tukey untuk nonadivitas perlakuan sumber nitrogen

ANOVA with Tukey's Test for Nonadditivity

| | | | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|---------------|---------------|--------------------|----|-------------|---------|------|
| Between People | | | 3.517 | 11 | .320 | | |
| Within People | Between Items | | 339.892 | 2 | 169.946 | 614.982 | .000 |
| | Residual | Nonadditivity | 3.520 ^a | 1 | 3.520 | 28.889 | .000 |
| | | Balance | 2.559 | 21 | .122 | | |
| | Total | | 6.080 | 22 | .276 | | |
| Total | | | 345.971 | 24 | 14.415 | | |
| Total | | | 349.489 | 35 | 9.985 | | |

Grand Mean = 4,07178

a. Tukey's estimate of power to which observations must be raised to achieve additivity = -.326.

Lampiran 33. Uji normalitas variansi nilai pertumbuhan data perlakuan sumber karbon

Test of Homogeneity of Variances

| | Levene Statistic | df1 | df2 | Sig. |
|----|------------------|-----|-----|------|
| G | 4.904 | 3 | 8 | .132 |
| Tg | 4.235 | 3 | 8 | .146 |
| Kc | 4.726 | 3 | 8 | .135 |

ANOVA

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----|----------------|----------------|----|-------------|--------|------|
| G | Between Groups | .955 | 3 | .318 | 11.248 | .003 |
| | Within Groups | .226 | 8 | .028 | | |
| | Total | 1.181 | 11 | | | |
| Tg | Between Groups | 7.883 | 3 | 2.628 | 39.490 | .000 |
| | Within Groups | .532 | 8 | .067 | | |
| | Total | 8.415 | 11 | | | |
| Kc | Between Groups | .001 | 3 | .000 | 32.344 | .000 |
| | Within Groups | .000 | 8 | .000 | | |
| | Total | .001 | 11 | | | |

Lampiran 34. Uji homogeinitas menggunakan tukey nilai pertumbuhan perlakuan sumber nitrogen

G

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | |
|-----------|---|-------------------------|---------|
| | | 1 | 2 |
| Urea | 3 | 4,11467 | |
| AN | 3 | 4,51867 | 4,51867 |
| AC | 3 | | 4,67700 |
| K (-) | 3 | | 4,88400 |
| Sig. | | .072 | .107 |

Means for groups in homogeneous subsets are displayed.

Tg

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-----------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| AC | 3 | 6,42600 | | |
| Urea | 3 | | 7,29067 | |
| AN | 3 | | | 7,96900 |
| K (-) | 3 | | | 8,61000 |
| Sig. | | 1.000 | 1.000 | .063 |

Means for groups in homogeneous subsets are displayed.

Kc

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-----------|---|-------------------------|--------|--------|
| | | 1 | 2 | 3 |
| K (-) | 3 | ,08067 | | |
| AN | 3 | ,08700 | ,08700 | |
| Urea | 3 | | ,09533 | |
| AC | 3 | | | ,10833 |
| Sig. | | .222 | .088 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Lampiran 35. Uji normalitas nilai pertumbuhan menggunakan kolmogorov-smirnov data perlakuan sumber nitrogen

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----|---------------------------------|----|------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| G | .258 | 12 | .026 | .775 | 12 | .093 |
| Tg | .254 | 12 | .032 | .822 | 12 | .067 |
| Kc | .255 | 12 | .030 | .826 | 12 | .088 |

a. Lilliefors Significance Correction

Lampiran 36. Uji nonaditivitas nilai pertumbuhan menggunakan uji tukey data perlakuan sumber nitrogen

ANOVA with Tukey's Test for Nonadditivity

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|--------------------|----|-------------|---------|------|
| Between People | 4.138 | 11 | .376 | | |
| Within People | | | | | |
| Between Items | 363.854 | 2 | 181.927 | 334.477 | .000 |
| Residual | | | | | |
| Nonadditivity | 5.510 ^a | 1 | 5.510 | 17.923 | .000 |
| Balance | 6.456 | 21 | .307 | | |
| Total | 11.966 | 22 | .544 | | |
| Total | 375.820 | 24 | 15.659 | | |
| Total | 379.958 | 35 | 10.856 | | |

Grand Mean = 4,05742

a. Tukey's estimate of power to which observations must be raised to achieve additivity = -,473.

Lampiran 37. Uji homogenitas variansi dan anova nilai pertumbuhan data perlakuan sumber nitrogen.

Test of Homogeneity of Variances

| | Levene Statistic | df1 | df2 | Sig. |
|----|------------------|-----|-----|------|
| G | 5.736 | 3 | 8 | .055 |
| Tg | 3.429 | 3 | 8 | .073 |
| Kc | 3.556 | 3 | 8 | .067 |

ANOVA

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|----|-------------|---------|------|
| G | | | | | |
| Between Groups | 2.447 | 3 | .816 | 396.925 | .000 |
| Within Groups | .016 | 8 | .002 | | |
| Total | 2.464 | 11 | | | |
| Tg | | | | | |
| Between Groups | 13.592 | 3 | 4.531 | 775.579 | .000 |
| Within Groups | .047 | 8 | .006 | | |
| Total | 13.639 | 11 | | | |
| Kc | | | | | |
| Between Groups | .002 | 3 | .001 | 467.800 | .000 |
| Within Groups | .000 | 8 | .000 | | |
| Total | .002 | 11 | | | |

Lampiran 38. Uji homogenitas nilai pertumbuhan menggunakan uji tukey data perlakuan sumber nitrogen

G

Tukey HSD

| perla kuan | N | Subset for alpha = 0.05 | | |
|---------------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| AN | 3 | 3,46267 | | |
| Urea | 3 | | 4,24233 | |
| AC | 3 | | | 4,54667 |
| K (-) | 3 | | | 4,58800 |
| Sig. | | 1.000 | 1.000 | .690 |

Means for groups in homogeneous subsets are displayed.

Tg

Tukey HSD

| perla kuan | N | Subset for alpha = 0.05 | | | |
|---------------|---|-------------------------|---------|---------|---------|
| | | 1 | 2 | 3 | 4 |
| AC | 3 | 6,59967 | | | |
| Urea | 3 | | 7,07200 | | |
| AN | 3 | | | 8,66467 | |
| K (-) | 3 | | | | 9,15400 |
| Sig. | | 1.000 | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Kc

Tukey HSD

| perla kuan | N | Subset for alpha = 0.05 | | | |
|---------------|---|-------------------------|--------|--------|--------|
| | | 1 | 2 | 3 | 4 |
| K (-) | 3 | ,07600 | | | |
| AN | 3 | | ,08000 | | |
| Urea | 3 | | | ,09800 | |
| AC | 3 | | | | ,10500 |
| Sig. | | 1.000 | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Lampiran 39. Uji normalitas nilai pertumbuhan menggunakan kolmogorov-smirnov data pertumbuhan perlakuan sumber nitrogen

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----|---------------------------------|----|-------------------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| G | .246 | 12 | .043 | .886 | 12 | .105 |
| Tg | .139 | 12 | .200 [*] | .928 | 12 | .364 |
| Kc | .152 | 12 | .200 [*] | .921 | 12 | .296 |

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Lampiran 40. Uji nonaditivitas nilai pertumbuhan menggunakan uji tukey data perlakuan sumber nitrogen

ANOVA with Tukey's Test for Nonadditivity

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|---------------|--------------------|----|-------------|---------|------|
| Between People | | 2.437 | 11 | .222 | | |
| Within People | Between Items | 401.001 | 2 | 200.500 | 387.055 | .000 |
| | Residual | 6.247 ^a | 1 | 6.247 | 25.474 | .000 |
| | Balance | 5.150 | 21 | .245 | | |
| | Total | 11.396 | 22 | .518 | | |
| Total | | 412.397 | 24 | 17.183 | | |
| Total | | 414.834 | 35 | 11.852 | | |

Grand Mean = 4,06225

a. Tukey's estimate of power to which observations must be raised to achieve additivity = -,949.

Lampiran 41. Uji homogenitas variansi dan anova nilai pertumbuhan data perlakuan sumber karbon

Test of Homogeneity of Variances

| | Levene Statistic | df1 | df2 | Sig. |
|----|------------------|-----|-----|------|
| G | 6.793 | 3 | 8 | .067 |
| Tg | 4.325 | 3 | 8 | .066 |
| Kc | 4.667 | 3 | 8 | .062 |

ANOVA

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----|----------------|----------------|----|-------------|---------|------|
| G | Between Groups | 1.331 | 3 | .444 | 62.264 | .000 |
| | Within Groups | .057 | 8 | .007 | | |
| | Total | 1.388 | 11 | | | |
| Tg | Between Groups | 12.282 | 3 | 4.094 | 201.997 | .000 |
| | Within Groups | .162 | 8 | .020 | | |
| | Total | 12.444 | 11 | | | |
| Kc | Between Groups | .001 | 3 | .000 | 125.598 | .000 |
| | Within Groups | .000 | 8 | .000 | | |
| | Total | .001 | 11 | | | |

G

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-----------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| AN | 3 | 3,46033 | | |
| K (-) | 3 | | 3,74833 | |
| Urea | 3 | | 3,80867 | |
| AC | 3 | | | 4,37900 |
| Sig. | | 1,000 | .818 | 1,000 |

Means for groups in homogeneous subsets are displayed.

Tg

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | | |
|-----------|---|-------------------------|---------|---------|---------|
| | | 1 | 2 | 3 | 4 |
| AC | 3 | 6,85600 | | | |
| Urea | 3 | | 7,87767 | | |
| AN | 3 | | | 8,67067 | |
| K (-) | 3 | | | | 9,60467 |
| Sig. | | 1,000 | 1,000 | 1,000 | 1,000 |

Means for groups in homogeneous subsets are displayed.

Kc

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | | |
|-----------|---|-------------------------|--------|--------|--------|
| | | 1 | 2 | 3 | 4 |
| K (-) | 3 | ,07233 | | | |
| AN | 3 | | ,08000 | | |
| Urea | 3 | | | ,08800 | |
| AC | 3 | | | | ,10133 |
| Sig. | | 1.000 | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Lampiran 43.Data OD x 10⁸ konsentrasi sumber molase

| Perlakuan | isolat | ulangan | Cell Density (x 10 ⁸), Cell = (OD - 0,045) / 0,052 | | | | | | | | |
|-----------|--------------|--------------|--|-------|--------|--------|--------|--------|--------|--------|--------|
| | | | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 |
| UP.7 | molase 0,5 % | u1 | 0,82 | 3,31 | 10,69 | 17,8 | 18,29 | 24,63 | 27,62 | 24,19 | 18,65 |
| | | u2 | 0,81 | 3,23 | 9,527 | 16,26 | 20,28 | 23,78 | 26,48 | 22,91 | 17,27 |
| | | u3 | 0,83 | 3,45 | 9,788 | 17,06 | 18,97 | 22,51 | 26,66 | 24,03 | 18,29 |
| | | x | 0,818 | 3,330 | 10,003 | 17,040 | 19,179 | 23,640 | 26,921 | 23,710 | 18,069 |
| | | sd | 0,013 | 0,108 | 0,612 | 0,768 | 1,010 | 1,066 | 0,608 | 0,702 | 0,719 |
| | | molase 1,5 % | u1 | 0,85 | 4,14 | 16,24 | 23,31 | 28,22 | 32,34 | 30,72 | 24,26 |
| | u2 | | 0,84 | 3,9 | 15,4 | 22,68 | 29,35 | 30,6 | 29,16 | 24,64 | 13,28 |
| | u3 | | 0,78 | 3,88 | 15,35 | 23,07 | 27,52 | 33,17 | 30,26 | 23,42 | 14,01 |
| | x | | 0,823 | 3,973 | 15,660 | 23,022 | 28,366 | 32,035 | 30,045 | 24,104 | 13,817 |
| | sd | | 0,036 | 0,142 | 0,499 | 0,319 | 0,925 | 1,312 | 0,804 | 0,624 | 0,475 |
| | molase 2,5 % | | u1 | 0,88 | 2,39 | 12,48 | 15,51 | 15,81 | 18,55 | 17,56 | 16,44 |
| | | u2 | 0,81 | 2,51 | 11,34 | 16,41 | 17,53 | 19,85 | 18,58 | 17,19 | 15,39 |
| | | u3 | 0,85 | 2,19 | 12,24 | 13,62 | 16,4 | 20,79 | 15,42 | 15,54 | 15,33 |
| | | x | 0,845 | 2,365 | 12,018 | 15,180 | 16,578 | 19,730 | 17,189 | 16,390 | 15,607 |
| | | sd | 0,038 | 0,163 | 0,598 | 1,424 | 0,874 | 1,125 | 1,612 | 0,826 | 0,431 |
| UP.8 | | molase 0,5 % | u1 | 0,86 | 2,25 | 7,463 | 10,8 | 10,37 | 13,27 | 13,18 | 10,22 |
| | u2 | | 0,8 | 1,87 | 8,17 | 9,173 | 12,14 | 13,77 | 10,55 | 10,48 | 8,85 |
| | u3 | | 0,89 | 2,13 | 7,127 | 10,25 | 11,43 | 12,02 | 12,56 | 10,27 | 8,645 |
| | x | | 0,850 | 2,083 | 7,587 | 10,073 | 11,314 | 13,020 | 12,097 | 10,321 | 8,823 |
| | sd | | 0,045 | 0,197 | 0,532 | 0,827 | 0,891 | 0,898 | 1,377 | 0,136 | 0,167 |
| | molase 1,5 % | | u1 | 0,84 | 5,21 | 12,3 | 22,08 | 23,31 | 30,4 | 23,12 | 19,74 |
| | | u2 | 0,91 | 4,88 | 11,64 | 19,69 | 22,68 | 31,08 | 22,99 | 18,17 | 14,08 |
| | | u3 | 0,83 | 4,86 | 12,2 | 21,52 | 23,07 | 27,7 | 22 | 18,48 | 14,09 |
| | | x | 0,861 | 4,982 | 12,047 | 21,093 | 23,022 | 29,726 | 22,705 | 18,795 | 14,010 |
| | | sd | 0,045 | 0,197 | 0,358 | 1,249 | 0,319 | 1,788 | 0,611 | 0,832 | 0,134 |
| | | molase 2,5 % | u1 | 0,88 | 3,88 | 8,634 | 12,48 | 13,34 | 18,09 | 19,41 | 15,11 |
| | u2 | | 0,82 | 3,8 | 7,797 | 11,23 | 13,9 | 17,01 | 15,78 | 15,36 | 14,23 |
| | u3 | | 0,83 | 3,79 | 8,432 | 12,27 | 12,88 | 17,3 | 18,77 | 15,46 | 14,47 |
| | x | | 0,842 | 3,820 | 8,288 | 11,989 | 13,373 | 17,464 | 17,984 | 15,313 | 14,686 |
| | sd | | 0,033 | 0,051 | 0,437 | 0,669 | 0,513 | 0,562 | 1,938 | 0,180 | 0,594 |
| UP.28 | molase 0,5 % | | u1 | 0,94 | 3,67 | 9,143 | 12,57 | 11,91 | 15,67 | 15,1 | 13,56 |
| | | u2 | 0,83 | 3,88 | 9,111 | 13,26 | 13,19 | 16,47 | 14,22 | 12,4 | 12,02 |
| | | u3 | 0,92 | 3,22 | 8,456 | 11,28 | 12,61 | 14,36 | 14,02 | 13,27 | 12,35 |
| | | x | 0,896 | 3,589 | 8,903 | 12,371 | 12,568 | 15,502 | 14,449 | 13,079 | 12,407 |
| | | sd | 0,056 | 0,337 | 0,388 | 1,006 | 0,644 | 1,067 | 0,575 | 0,605 | 0,413 |
| | | molase 1,5 % | u1 | 0,83 | 3,13 | 10,41 | 13,27 | 22,28 | 26,21 | 22,01 | 22,99 |
| | u2 | | 0,86 | 2,78 | 10,47 | 12,44 | 22,18 | 26,17 | 22,14 | 20,43 | 12,57 |
| | u3 | | 0,83 | 3,07 | 11,02 | 12,52 | 23,47 | 24,8 | 22,54 | 22,55 | 12,17 |
| | x | | 0,842 | 2,991 | 10,632 | 12,740 | 22,638 | 25,728 | 22,232 | 21,989 | 12,324 |
| | sd | | 0,019 | 0,186 | 0,334 | 0,457 | 0,718 | 0,804 | 0,275 | 1,371 | 0,212 |
| | molase 2,5 % | | u1 | 0,83 | 1,53 | 3,729 | 7,955 | 9,392 | 10,54 | 12 | 8,305 |
| | | u2 | 0,76 | 1,59 | 3,464 | 7,391 | 8,558 | 10,6 | 11,01 | 8,023 | 7,717 |
| | | u3 | 0,82 | 1,52 | 3,633 | 7,75 | 9,254 | 11,3 | 11,43 | 8,383 | 7,269 |
| | | x | 0,800 | 1,546 | 3,609 | 7,699 | 9,068 | 10,811 | 11,483 | 8,237 | 7,505 |
| | | sd | 0,040 | 0,041 | 0,134 | 0,285 | 0,447 | 0,428 | 0,495 | 0,189 | 0,225 |

Lampiran 44. Data OD pertumbuhan konsentrasi sumber molase

| isolat | Perlakuan | ulangan | C0 (cell.T0) | C1 (cell.T.opt) | ΔT | G | Tg | $\mu = (\ln C1 - \ln C0) / \Delta T$ |
|--------|--------------|---------|---------------|-----------------|------------|-------|-------|--------------------------------------|
| UP.7 | molase 0,5 % | u1 | 0,817 | 27,615 | 36 | 5,079 | 7,087 | 0,098 |
| | | u2 | 0,806 | 26,483 | 36 | 5,039 | 7,145 | 0,097 |
| | | u3 | 0,831 | 26,664 | 36 | 5,004 | 7,194 | 0,096 |
| | | x | 0,818 | 26,921 | 36 | 5,041 | 7,142 | 0,097 |
| | | sd | 0,013 | 0,608 | 0 | 0,038 | 0,053 | 0,0007 |
| | molase 1,5 % | u1 | 0,845 | 32,344 | 30 | 5,259 | 5,705 | 0,121 |
| | | u2 | 0,842 | 30,597 | 30 | 5,184 | 5,787 | 0,120 |
| | | u3 | 0,782 | 33,165 | 30 | 5,407 | 5,548 | 0,125 |
| | | x | 0,823 | 32,035 | 30 | 5,283 | 5,680 | 0,122 |
| | | sd | 0,036 | 1,312 | 0 | 0,113 | 0,121 | 0,0026 |
| | molase 2,5 % | u1 | 0,883 | 18,55 | 30 | 4,393 | 6,829 | 0,101 |
| | | u2 | 0,807 | 19,85 | 30 | 4,621 | 6,492 | 0,107 |
| | | u3 | 0,846 | 20,79 | 30 | 4,620 | 6,494 | 0,107 |
| | | x | 0,845 | 19,730 | 30 | 4,545 | 6,605 | 0,105 |
| | | sd | 0,038 | 1,125 | 0 | 0,131 | 0,194 | 0,0030 |
| UP.8 | molase 0,5 % | u1 | 0,863 | 15,671 | 30 | 4,183 | 7,172 | 0,097 |
| | | u2 | 0,8 | 16,474 | 30 | 4,364 | 6,874 | 0,101 |
| | | u3 | 0,886 | 14,36 | 30 | 4,019 | 7,465 | 0,093 |
| | | x | 0,850 | 15,502 | 30 | 4,189 | 7,170 | 0,097 |
| | | sd | 0,045 | 1,067 | 0 | 0,173 | 0,295 | 0,0040 |
| | molase 1,5 % | u1 | 0,837 | 30,4 | 30 | 5,183 | 5,788 | 0,120 |
| | | u2 | 0,913 | 31,079 | 30 | 5,090 | 5,894 | 0,118 |
| | | u3 | 0,834 | 27,699 | 30 | 5,054 | 5,936 | 0,117 |
| | | x | 0,861 | 29,726 | 30 | 5,109 | 5,873 | 0,118 |
| | | sd | 0,045 | 1,788 | 0 | 0,067 | 0,076 | 0,0015 |
| | molase 2,5 % | u1 | 0,88 | 19,405 | 36 | 4,463 | 8,066 | 0,086 |
| | | u2 | 0,82 | 15,777 | 36 | 4,266 | 8,438 | 0,082 |
| | | u3 | 0,825 | 18,77 | 36 | 4,508 | 7,985 | 0,087 |
| | | x | 0,842 | 17,984 | 36 | 4,413 | 8,163 | 0,085 |
| | | sd | 0,033 | 1,938 | 0 | 0,129 | 0,241 | 0,0025 |
| UP.28 | molase 0,5 % | u1 | 0,937 | 27,587 | 36 | 4,880 | 7,377 | 0,094 |
| | | u2 | 0,833 | 27,763 | 36 | 5,059 | 7,116 | 0,097 |
| | | u3 | 0,919 | 26,855 | 36 | 4,869 | 7,393 | 0,094 |
| | | x | 0,896 | 27,402 | 36 | 4,936 | 7,295 | 0,095 |
| | | sd | 0,056 | 0,482 | 0 | 0,107 | 0,156 | 0,0021 |
| | molase 1,5 % | u1 | 0,834 | 26,212 | 30 | 4,975 | 6,031 | 0,115 |
| | | u2 | 0,864 | 26,173 | 30 | 4,921 | 6,096 | 0,114 |
| | | u3 | 0,829 | 24,8 | 30 | 4,903 | 6,118 | 0,113 |
| | | x | 0,842 | 25,728 | 30 | 4,933 | 6,082 | 0,114 |
| | | sd | 0,019 | 0,804 | 0 | 0,037 | 0,045 | 0,0009 |
| | molase 2,5 % | u1 | 0,829 | 12,001 | 36 | 3,856 | 9,336 | 0,074 |
| | | u2 | 0,755 | 11,014 | 36 | 3,867 | 9,309 | 0,074 |
| | | u3 | 0,817 | 11,434 | 36 | 3,807 | 9,456 | 0,073 |
| | | x | 0,800 | 11,483 | 36 | 3,843 | 9,367 | 0,074 |
| | | sd | 0,040 | 0,495 | 0 | 0,032 | 0,078 | 0,0006 |

Lampiran 45. Data uji normalitas menggunakan kolmogorov simrnov untuk data konsentrasi sumber molase terhadap pertumbuhan bakteri

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----|---------------------------------|----|-------------------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| G | .223 | 9 | .200 [*] | .932 | 9 | .502 |
| Tg | .188 | 9 | .200 [*] | .878 | 9 | .149 |
| Kc | .202 | 9 | .200 [*] | .871 | 9 | .127 |

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Lampiran 46. Data uji nonaditivitas menggunakan tukey untuk data konsentrasi sumber molase terhadap pertumbuhan bakteri

ANOVA with Tukey's Test for Nonadditivity

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|------------------------|-------------------|----|-------------|---------|------|
| Between People | | .838 | 8 | .105 | | |
| Within People | Between Items | 199.083 | 2 | 99.542 | 459.139 | .000 |
| | Residual Nonadditivity | .821 ^a | 1 | .821 | 4.651 | .048 |
| | Balance | 2.648 | 15 | .177 | | |
| | Total | 3.469 | 16 | .217 | | |
| | Total | 202.552 | 18 | 11.253 | | |
| Total | | 203.390 | 26 | 7.823 | | |

Grand Mean = 3,84663

a. Tukey's estimate of power to which observations must be raised to achieve additivity = -.402.

Lampiran 47. Data uji homogenitas variansi dan anova data konsentrasi sumber molase terhadap pertumbuhan bakteri

Test of Homogeneity of Variances

| | Levene Statistic | df1 | df2 | Sig. |
|----|------------------|-----|-----|------|
| G | 2.773 | 2 | 6 | .140 |
| Tg | 3.506 | 2 | 6 | .098 |
| Kc | 3.500 | 2 | 6 | .098 |

ANOVA

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----|----------------|----------------|----|-------------|--------|------|
| G | Between Groups | .851 | 2 | .425 | 40.454 | .000 |
| | Within Groups | .063 | 6 | .011 | | |
| | Total | .914 | 8 | | | |
| Tg | Between Groups | 3.281 | 2 | 1.641 | 89.087 | .000 |
| | Within Groups | .111 | 6 | .018 | | |
| | Total | 3.392 | 8 | | | |
| Kc | Between Groups | .001 | 2 | .000 | 73.350 | .000 |
| | Within Groups | .000 | 6 | .000 | | |
| | Total | .001 | 8 | | | |

Lampiran 48. Data uji tukey untuk data pertumbuhan bakteri pada konsentrasi sumber molase

G

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | |
|-------------|---|-------------------------|---------|
| | | 1 | 2 |
| molase 2,5% | 3 | 4,54467 | |
| molase 0,5% | 3 | | 5,04067 |
| molase 1,5% | 3 | | 5,28333 |
| Sig. | | 1.000 | .062 |

Means for groups in homogeneous subsets are displayed.

Tg

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-------------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| molase 1,5% | 3 | 5,68000 | | |
| molase 2,5% | 3 | | 6,60500 | |
| molase 0,5% | 3 | | | 7,14200 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Kc

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-------------|---|-------------------------|--------|--------|
| | | 1 | 2 | 3 |
| molase 0,5% | 3 | ,09700 | | |
| molase 2,5% | 3 | | ,10500 | |
| molase 1,5% | 3 | | | ,12200 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Lampiran 49. Data uji normalitas menggunakan kolmogorov simrnov untuk data konsentrasi sumber molase pertumbuhan bakteri

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----|---------------------------------|----|-------------------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| G | .195 | 9 | .200 [*] | .921 | 9 | .403 |
| Tg | .221 | 9 | .200 [*] | .833 | 9 | .087 |
| Kc | .246 | 9 | .124 | .800 | 9 | .057 |

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Lampiran 50. Data uji nnaditivitas menggunakan tukey untuk data konsentrasi sumber karbon pertumbuhan bakteri

ANOVA with Tukey's Test for Nonadditivity

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|--------------------|----|-------------|---------|------|
| Between People | 1.275 | 8 | .159 | | |
| Within People | | | | | |
| Between Items | 232.449 | 2 | 116.224 | 188.234 | .000 |
| Residual | 2.854 ^a | 1 | 2.854 | 6.094 | .026 |
| Nonadditivity | | | | | |
| Balance | 7.025 | 15 | .468 | | |
| Total | 9.879 | 16 | .617 | | |
| Total | 242.328 | 18 | 13.463 | | |
| Total | 243.603 | 26 | 9.369 | | |

Grand Mean = 3,93530

a. Tukey's estimate of power to which observations must be raised to achieve additivity = -1,006.

Lampiran 51. Data uji homogenitas variansi untuk data konsentrai sumber molase pertumbuhan bakteri

Test of Homogeneity of Variances

| | Levene Statistic | df1 | df2 | Sig. |
|----|------------------|-----|-----|------|
| G | .877 | 2 | 6 | .463 |
| Tg | 1.736 | 2 | 6 | .254 |
| Kc | .804 | 2 | 6 | .490 |

ANOVA

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|----|-------------|---------|------|
| G | | | | | |
| Between Groups | 2.085 | 2 | 1.042 | 62.216 | .000 |
| Within Groups | .101 | 6 | .017 | | |
| Total | 2.185 | 8 | | | |
| Tg | | | | | |
| Between Groups | 8.616 | 2 | 4.308 | 73.683 | .000 |
| Within Groups | .351 | 6 | .058 | | |
| Total | 8.967 | 8 | | | |
| Kc | | | | | |
| Between Groups | .002 | 2 | .001 | 112.158 | .000 |
| Within Groups | .000 | 6 | .000 | | |
| Total | .002 | 8 | | | |

Lampiran 52. Data uji tukey konsentrasi sumber molase data pertumbuhan bakteri

G

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-------------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| molase 0,5% | 3 | 3,93700 | | |
| molase 2,5% | 3 | | 4,41233 | |
| molase 1,5% | 3 | | | 5,10900 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Tg

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | |
|-------------|---|-------------------------|---------|
| | | 1 | 2 |
| molase 1,5% | 3 | 5,87267 | |
| molase 0,5% | 3 | | 7,62933 |
| molase 2,5% | 3 | | 8,16300 |
| Sig. | | 1.000 | .079 |

Means for groups in homogeneous subsets are displayed.

Kc

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | |
|-------------|---|-------------------------|--------|
| | | 1 | 2 |
| molase 2,5% | 3 | ,08500 | |
| molase 0,5% | 3 | ,09100 | |
| molase 1,5% | 3 | | ,11833 |
| Sig. | | .098 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Lampiran 53. Uji normalitas konsentrasi sumber molase data pertumbuhan bakteri

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----|---------------------------------|----|-------------------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| G | .234 | 9 | .167 | .807 | 9 | .072 |
| Tg | .217 | 9 | .200 [*] | .842 | 9 | .061 |
| Kc | .208 | 9 | .200 [*] | .859 | 9 | .095 |

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Lampiran 54. Data uji nonaditivitas menggunakan tukey untuk data konsentrasi sumber molase terhadap pertumbuhan bakteri

ANOVA with Tukey's Test for Nonadditivity

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|------------------------|--------------------|----|-------------|---------|------|
| Between People | | 2.657 | 8 | .332 | | |
| Within People | Between Items | 253.703 | 2 | 126.851 | 126.128 | .000 |
| | Residual Nonadditivity | 7.161 ^a | 1 | 7.161 | 12.028 | .003 |
| | Balance | 8.931 | 15 | .595 | | |
| | Total | 16.092 | 16 | 1.006 | | |
| Total | | 269.795 | 18 | 14.989 | | |
| Total | | 272.452 | 26 | 10.479 | | |

Grand Mean = 3,99152

a. Tukey's estimate of power to which observations must be raised to achieve additivity = -1,138.

Lampiran 55. Data uji homogenitas variansi untuk data konsentrasi sumber molase terhadap pertumbuhan bakteri

Test of Homogeneity of Variances

| | Levene Statistic | df1 | df2 | Sig. |
|----|------------------|-----|-----|------|
| G | 5.418 | 2 | 6 | .053 |
| Tg | 5.083 | 2 | 6 | .051 |
| Kc | 4.986 | 2 | 6 | .053 |

ANOVA

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----|----------------|----------------|----|-------------|---------|------|
| G | Between Groups | 1.934 | 2 | .967 | 87.752 | .000 |
| | Within Groups | .066 | 6 | .011 | | |
| | Total | 2.000 | 8 | | | |
| Tg | Between Groups | 16.543 | 2 | 8.272 | 243.960 | .000 |
| | Within Groups | .203 | 6 | .034 | | |
| | Total | 16.747 | 8 | | | |
| Kc | Between Groups | .002 | 2 | .001 | 255.651 | .000 |
| | Within Groups | .000 | 6 | .000 | | |
| | Total | .002 | 8 | | | |

G

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-------------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| molase 2,5% | 3 | 3,84333 | | |
| molase 0,5% | 3 | | 4,11200 | |
| molase 1,5% | 3 | | | 4,93300 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Tg

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-------------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| molase 1,5% | 3 | 6,08167 | | |
| molase 0,5% | 3 | | 7,30400 | |
| molase 2,5% | 3 | | | 9,36700 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Kc

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-------------|---|-------------------------|--------|--------|
| | | 1 | 2 | 3 |
| molase 2,5% | 3 | ,07367 | | |
| molase 0,5% | 3 | | ,09500 | |
| molase 1,5% | 3 | | | ,11400 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Lampiran 56. Data OD konsentrasi sumber nitrogen

| Perlakuan | isolat | ulangan | Data OD jam ke- | | | | | | | | |
|-----------|-----------------------|---------|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 |
| UP.7 | Amonium Clorida 0,05% | u1 | 0,092 | 0,145 | 0,411 | 0,562 | 0,851 | 0,949 | 1,046 | 1,022 | 0,935 |
| | | u2 | 0,086 | 0,128 | 0,443 | 0,571 | 0,798 | 0,871 | 0,96 | 0,896 | 0,859 |
| | | u3 | 0,09 | 0,14 | 0,425 | 0,579 | 0,772 | 0,911 | 1,005 | 0,975 | 0,898 |
| | | x | 0,089 | 0,138 | 0,426 | 0,571 | 0,807 | 0,910 | 1,004 | 0,964 | 0,897 |
| | | sd | 0,003 | 0,009 | 0,016 | 0,009 | 0,040 | 0,039 | 0,043 | 0,064 | 0,038 |
| | Amonium Clorida 0,15% | u1 | 0,093 | 0,16 | 0,321 | 0,851 | 1,046 | 1,241 | 1,16 | 1,09 | 0,971 |
| | | u2 | 0,088 | 0,15 | 0,316 | 0,779 | 1,098 | 1,223 | 1,213 | 0,976 | 0,87 |
| | | u3 | 0,089 | 0,149 | 0,312 | 0,839 | 1,041 | 1,328 | 1,264 | 1,001 | 0,893 |
| | | x | 0,090 | 0,153 | 0,316 | 0,823 | 1,062 | 1,264 | 1,212 | 1,022 | 0,911 |
| | | sd | 0,003 | 0,006 | 0,005 | 0,039 | 0,032 | 0,056 | 0,052 | 0,060 | 0,053 |
| | Amonium Clorida 0,25% | u1 | 0,088 | 0,113 | 0,257 | 0,517 | 0,943 | 0,963 | 1,006 | 1,073 | 0,941 |
| | | u2 | 0,085 | 0,109 | 0,234 | 0,51 | 0,921 | 1,049 | 1,073 | 0,94 | 0,955 |
| | | u3 | 0,087 | 0,109 | 0,251 | 0,499 | 0,892 | 0,941 | 1,121 | 1,023 | 0,969 |
| | | x | 0,087 | 0,110 | 0,247 | 0,509 | 0,919 | 0,984 | 1,067 | 1,012 | 0,955 |
| | | sd | 0,002 | 0,002 | 0,012 | 0,009 | 0,026 | 0,057 | 0,058 | 0,067 | 0,014 |
| UP.8 | Amonium Clorida 0,05% | u1 | 0,094 | 0,173 | 0,422 | 0,472 | 0,621 | 0,746 | 0,884 | 0,869 | 0,512 |
| | | u2 | 0,089 | 0,17 | 0,385 | 0,462 | 0,585 | 0,771 | 0,88 | 0,798 | 0,55 |
| | | u3 | 0,089 | 0,169 | 0,416 | 0,488 | 0,615 | 0,742 | 0,804 | 0,787 | 0,562 |
| | | x | 0,091 | 0,171 | 0,408 | 0,474 | 0,607 | 0,753 | 0,856 | 0,818 | 0,541 |
| | | sd | 0,003 | 0,002 | 0,020 | 0,013 | 0,019 | 0,016 | 0,045 | 0,045 | 0,026 |
| | Amonium Clorida 0,15% | u1 | 0,092 | 0,212 | 0,575 | 1,062 | 1,046 | 1,19 | 1,186 | 1,147 | 0,932 |
| | | u2 | 0,088 | 0,201 | 0,584 | 1,019 | 1,075 | 1,173 | 1,085 | 1,035 | 0,928 |
| | | u3 | 0,088 | 0,201 | 0,604 | 0,996 | 1,031 | 1,113 | 1,091 | 1,041 | 0,978 |
| | | x | 0,089 | 0,205 | 0,588 | 1,026 | 1,051 | 1,159 | 1,121 | 1,074 | 0,946 |
| | | sd | 0,002 | 0,006 | 0,015 | 0,034 | 0,022 | 0,040 | 0,057 | 0,063 | 0,028 |
| | Amonium Clorida 0,25% | u1 | 0,087 | 0,153 | 0,509 | 0,684 | 0,886 | 0,946 | 0,948 | 0,571 | 0,47 |
| | | u2 | 0,088 | 0,141 | 0,538 | 0,649 | 0,841 | 0,88 | 0,98 | 0,58 | 0,477 |
| | | u3 | 0,087 | 0,151 | 0,516 | 0,679 | 0,892 | 0,969 | 0,873 | 0,568 | 0,483 |
| | | x | 0,087 | 0,148 | 0,521 | 0,671 | 0,873 | 0,932 | 0,934 | 0,573 | 0,477 |
| | | sd | 0,001 | 0,006 | 0,015 | 0,019 | 0,028 | 0,046 | 0,055 | 0,006 | 0,007 |
| UP.28 | Amonium Clorida 0,05% | u1 | 0,087 | 0,144 | 0,307 | 0,358 | 0,427 | 0,484 | 0,488 | 0,418 | 0,242 |
| | | u2 | 0,089 | 0,144 | 0,315 | 0,326 | 0,454 | 0,487 | 0,412 | 0,394 | 0,241 |
| | | u3 | 0,087 | 0,147 | 0,311 | 0,352 | 0,433 | 0,491 | 0,464 | 0,393 | 0,251 |
| | | x | 0,088 | 0,145 | 0,311 | 0,345 | 0,438 | 0,487 | 0,455 | 0,402 | 0,245 |
| | | sd | 0,001 | 0,002 | 0,004 | 0,017 | 0,014 | 0,004 | 0,039 | 0,014 | 0,006 |
| | Amonium Clorida 0,15% | u1 | 0,091 | 0,149 | 0,522 | 0,861 | 0,938 | 1,121 | 0,562 | 0,525 | 0,461 |
| | | u2 | 0,089 | 0,149 | 0,48 | 0,841 | 0,934 | 1,064 | 0,618 | 0,523 | 0,468 |
| | | u3 | 0,089 | 0,15 | 0,515 | 0,89 | 0,948 | 1,05 | 0,604 | 0,538 | 0,471 |
| | | x | 0,090 | 0,149 | 0,506 | 0,864 | 0,940 | 1,078 | 0,595 | 0,529 | 0,467 |
| | | sd | 0,001 | 0,001 | 0,023 | 0,025 | 0,007 | 0,038 | 0,029 | 0,008 | 0,005 |
| | Amonium Clorida 0,25% | u1 | 0,088 | 0,153 | 0,367 | 0,626 | 0,679 | 0,738 | 0,886 | 0,79 | 0,437 |
| | | u2 | 0,087 | 0,149 | 0,362 | 0,624 | 0,695 | 0,662 | 0,918 | 0,747 | 0,425 |
| | | u3 | 0,087 | 0,15 | 0,38 | 0,633 | 0,682 | 0,717 | 0,907 | 0,745 | 0,427 |
| | | x | 0,087 | 0,151 | 0,370 | 0,628 | 0,685 | 0,706 | 0,904 | 0,761 | 0,430 |
| | | sd | 0,001 | 0,002 | 0,009 | 0,005 | 0,009 | 0,039 | 0,016 | 0,025 | 0,006 |

Lampiran 57. Data OD ($\times 10^8$) konsentrasi sumber nitrogen

| Perlakuan | isolat | ulangan | Cell Density ($\times 10^8$), Cell = (OD - 0,045) / 0,052 | | | | | | | | |
|-----------|-----------------------|---------|---|-------|--------|--------|--------|--------|--------|--------|--------|
| | | | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 |
| UP.7 | Amonium Clorida 0,05% | u1 | 0,922 | 1,933 | 7,054 | 9,956 | 15,517 | 17,386 | 19,269 | 18,806 | 17,134 |
| | | u2 | 0,803 | 1,602 | 7,664 | 10,119 | 14,496 | 15,886 | 17,606 | 16,367 | 15,656 |
| | | u3 | 0,878 | 1,828 | 7,315 | 10,276 | 13,996 | 16,661 | 18,466 | 17,897 | 16,42 |
| | | x | 0,868 | 1,788 | 7,344 | 10,117 | 14,670 | 16,644 | 18,447 | 17,690 | 16,403 |
| | | sd | 0,060 | 0,169 | 0,306 | 0,160 | 0,775 | 0,750 | 0,832 | 1,233 | 0,739 |
| | Amonium Clorida 0,15% | u1 | 0,933 | 2,22 | 5,311 | 15,51 | 19,257 | 23,015 | 21,444 | 20,097 | 17,822 |
| | | u2 | 0,831 | 2,031 | 5,218 | 14,133 | 20,268 | 22,672 | 22,469 | 17,904 | 15,877 |
| | | u3 | 0,854 | 2,001 | 5,149 | 15,282 | 19,165 | 24,679 | 23,451 | 18,395 | 16,312 |
| | | x | 0,873 | 2,084 | 5,226 | 14,975 | 19,563 | 23,455 | 22,455 | 18,799 | 16,670 |
| | | sd | 0,054 | 0,119 | 0,081 | 0,738 | 0,612 | 1,074 | 1,004 | 1,151 | 1,021 |
| | Amonium Clorida 0,25% | u1 | 0,843 | 1,323 | 4,08 | 9,077 | 17,273 | 17,672 | 18,481 | 19,777 | 17,231 |
| | | u2 | 0,77 | 1,24 | 3,638 | 8,951 | 16,852 | 19,311 | 19,77 | 17,212 | 17,513 |
| | | u3 | 0,808 | 1,249 | 3,976 | 8,743 | 16,29 | 17,232 | 20,707 | 18,82 | 17,785 |
| | | x | 0,807 | 1,271 | 3,898 | 8,924 | 16,805 | 18,072 | 19,653 | 18,603 | 17,510 |
| | | sd | 0,037 | 0,046 | 0,231 | 0,169 | 0,493 | 1,096 | 1,118 | 1,296 | 0,277 |
| UP.8 | Amonium Clorida 0,05% | u1 | 0,96 | 2,462 | 7,268 | 8,226 | 11,089 | 13,487 | 16,144 | 15,85 | 8,986 |
| | | u2 | 0,86 | 2,41 | 6,54 | 8,024 | 10,394 | 13,974 | 16,063 | 14,498 | 9,717 |
| | | u3 | 0,865 | 2,402 | 7,145 | 8,523 | 10,969 | 13,422 | 14,598 | 14,287 | 9,949 |
| | | x | 0,895 | 2,425 | 6,984 | 8,258 | 10,817 | 13,628 | 15,602 | 14,878 | 9,551 |
| | | sd | 0,056 | 0,033 | 0,390 | 0,251 | 0,371 | 0,302 | 0,870 | 0,848 | 0,503 |
| | Amonium Clorida 0,15% | u1 | 0,913 | 3,221 | 10,21 | 19,56 | 19,255 | 22,022 | 21,956 | 21,201 | 17,059 |
| | | u2 | 0,832 | 3,016 | 10,374 | 18,74 | 19,821 | 21,701 | 20,006 | 19,055 | 16,993 |
| | | u3 | 0,837 | 3,005 | 10,767 | 18,297 | 18,968 | 20,555 | 20,134 | 19,171 | 17,957 |
| | | x | 0,861 | 3,081 | 10,450 | 18,866 | 19,348 | 21,426 | 20,699 | 19,809 | 17,336 |
| | | sd | 0,045 | 0,122 | 0,286 | 0,641 | 0,434 | 0,771 | 1,091 | 1,207 | 0,539 |
| | Amonium Clorida 0,25% | u1 | 0,812 | 2,088 | 8,927 | 12,295 | 16,184 | 17,336 | 17,38 | 10,117 | 8,177 |
| | | u2 | 0,827 | 1,855 | 9,498 | 11,634 | 15,318 | 16,06 | 17,991 | 10,301 | 8,311 |
| | | u3 | 0,808 | 2,048 | 9,068 | 12,198 | 16,307 | 17,779 | 15,931 | 10,068 | 8,44 |
| | | x | 0,816 | 1,997 | 9,164 | 12,042 | 15,936 | 17,058 | 17,101 | 10,162 | 8,309 |
| | | sd | 0,010 | 0,125 | 0,297 | 0,357 | 0,539 | 0,893 | 1,058 | 0,123 | 0,132 |
| UP.28 | Amonium Clorida 0,05% | u1 | 0,824 | 1,905 | 5,05 | 6,02 | 7,36 | 8,449 | 8,537 | 7,186 | 3,801 |
| | | u2 | 0,847 | 1,916 | 5,211 | 5,417 | 7,882 | 8,501 | 7,075 | 6,728 | 3,784 |
| | | u3 | 0,82 | 1,968 | 5,127 | 5,919 | 7,477 | 8,585 | 8,072 | 6,703 | 3,975 |
| | | x | 0,830 | 1,930 | 5,129 | 5,785 | 7,573 | 8,512 | 7,895 | 6,872 | 3,853 |
| | | sd | 0,015 | 0,034 | 0,081 | 0,323 | 0,274 | 0,069 | 0,747 | 0,272 | 0,106 |
| | Amonium Clorida 0,15% | u1 | 0,901 | 2,012 | 9,192 | 15,695 | 17,174 | 20,698 | 9,96 | 9,243 | 8,008 |
| | | u2 | 0,854 | 2,003 | 8,376 | 15,311 | 17,104 | 19,603 | 11,027 | 9,207 | 8,139 |
| | | u3 | 0,851 | 2,035 | 9,057 | 16,263 | 17,371 | 19,334 | 10,761 | 9,498 | 8,194 |
| | | x | 0,869 | 2,017 | 8,875 | 15,756 | 17,216 | 19,878 | 10,583 | 9,316 | 8,114 |
| | | sd | 0,028 | 0,017 | 0,437 | 0,479 | 0,138 | 0,722 | 0,555 | 0,159 | 0,096 |
| | Amonium Clorida 0,25% | u1 | 0,841 | 2,095 | 6,2 | 11,182 | 12,199 | 13,337 | 16,176 | 14,345 | 7,557 |
| | | u2 | 0,823 | 2,009 | 6,11 | 11,137 | 12,506 | 11,881 | 16,8 | 13,516 | 7,309 |
| | | u3 | 0,82 | 2,023 | 6,455 | 11,311 | 12,262 | 12,926 | 16,592 | 13,467 | 7,36 |
| | | x | 0,828 | 2,042 | 6,255 | 11,210 | 12,322 | 12,715 | 16,523 | 13,776 | 7,409 |
| | | sd | 0,011 | 0,046 | 0,179 | 0,090 | 0,162 | 0,751 | 0,318 | 0,493 | 0,131 |

Lampiran 58. Data nilai pertumbuhan terhadap konsentrasi sumber nitrogen

| isolat | Perlakuan | ulangan | C0 (cell.T0) | C1 (cell.T.opt) | ΔT | G | Tg | $\mu = (\ln C1 - \ln C0) / \Delta T$ |
|--------|-----------------------|---------|---------------|-----------------|------------|-------|-------|--------------------------------------|
| UP.7 | Amonium Clorida 0,05% | u1 | 0,922 | 19,269 | 36 | 4,386 | 8,208 | 0,084 |
| | | u2 | 0,803 | 17,606 | 36 | 4,455 | 8,081 | 0,086 |
| | | u3 | 0,878 | 18,466 | 36 | 4,395 | 8,191 | 0,085 |
| | | x | 0,868 | 18,447 | 36 | 4,412 | 8,160 | 0,085 |
| | | sd | 0,060 | 0,832 | 0 | 0,038 | 0,069 | 0,0007 |
| | Amonium Clorida 0,15% | u1 | 0,933 | 23,015 | 30 | 4,625 | 6,486 | 0,107 |
| | | u2 | 0,831 | 22,672 | 30 | 4,770 | 6,289 | 0,110 |
| | | u3 | 0,854 | 24,679 | 30 | 4,853 | 6,181 | 0,112 |
| | | x | 0,873 | 23,455 | 30 | 4,750 | 6,319 | 0,110 |
| | | sd | 0,054 | 1,074 | 0 | 0,116 | 0,155 | 0,0027 |
| | Amonium Clorida 0,25% | u1 | 0,843 | 18,481 | 36 | 4,455 | 8,081 | 0,086 |
| | | u2 | 0,77 | 19,77 | 36 | 4,683 | 7,688 | 0,090 |
| | | u3 | 0,808 | 20,707 | 36 | 4,680 | 7,692 | 0,090 |
| | | x | 0,807 | 19,653 | 36 | 4,606 | 7,820 | 0,089 |
| | | sd | 0,037 | 1,118 | 0 | 0,131 | 0,226 | 0,0025 |
| UP.8 | Amonium Clorida 0,05% | u1 | 0,96 | 16,144 | 36 | 4,072 | 8,840 | 0,078 |
| | | u2 | 0,86 | 16,063 | 36 | 4,224 | 8,523 | 0,081 |
| | | u3 | 0,865 | 14,598 | 36 | 4,077 | 8,829 | 0,078 |
| | | x | 0,895 | 15,602 | 36 | 4,124 | 8,731 | 0,079 |
| | | sd | 0,056 | 0,870 | 0 | 0,086 | 0,180 | 0,0017 |
| | Amonium Clorida 0,15% | u1 | 0,913 | 22,022 | 30 | 4,593 | 6,532 | 0,106 |
| | | u2 | 0,832 | 21,701 | 30 | 4,706 | 6,376 | 0,109 |
| | | u3 | 0,837 | 20,555 | 30 | 4,619 | 6,496 | 0,107 |
| | | x | 0,861 | 21,426 | 30 | 4,639 | 6,468 | 0,107 |
| | | sd | 0,045 | 0,771 | 0 | 0,059 | 0,082 | 0,0014 |
| | Amonium Clorida 0,25% | u1 | 0,812 | 17,38 | 36 | 4,420 | 8,144 | 0,085 |
| | | u2 | 0,827 | 17,991 | 36 | 4,444 | 8,101 | 0,086 |
| | | u3 | 0,808 | 15,931 | 36 | 4,302 | 8,369 | 0,083 |
| | | x | 0,816 | 17,101 | 36 | 4,389 | 8,205 | 0,084 |
| | | sd | 0,010 | 1,058 | 0 | 0,076 | 0,144 | 0,0015 |
| UP.28 | Amonium Clorida 0,05% | u1 | 0,824 | 8,4496 | 30 | 3,359 | 8,933 | 0,078 |
| | | u2 | 0,847 | 8,5012 | 30 | 3,328 | 9,016 | 0,077 |
| | | u3 | 0,82 | 8,5856 | 30 | 3,389 | 8,853 | 0,078 |
| | | x | 0,830 | 8,512 | 30 | 3,358 | 8,934 | 0,078 |
| | | sd | 0,015 | 0,069 | 0 | 0,030 | 0,081 | 0,0007 |
| | Amonium Clorida 0,15% | u1 | 0,901 | 20,698 | 30 | 4,522 | 6,634 | 0,104 |
| | | u2 | 0,854 | 19,603 | 30 | 4,521 | 6,635 | 0,104 |
| | | u3 | 0,851 | 19,334 | 30 | 4,506 | 6,657 | 0,104 |
| | | x | 0,869 | 19,878 | 30 | 4,517 | 6,642 | 0,104 |
| | | sd | 0,028 | 0,722 | 0 | 0,009 | 0,013 | 0,0002 |
| | Amonium Clorida 0,25% | u1 | 0,841 | 16,176 | 36 | 4,266 | 8,439 | 0,082 |
| | | u2 | 0,823 | 16,8 | 36 | 4,352 | 8,272 | 0,084 |
| | | u3 | 0,82 | 16,592 | 36 | 4,339 | 8,297 | 0,084 |
| | | x | 0,828 | 16,523 | 36 | 4,319 | 8,336 | 0,083 |
| | | sd | 0,011 | 0,318 | 0 | 0,046 | 0,090 | 0,0009 |

Lampiran 59. Data uji normalitas menggunakan kolmogorov simrnov untuk data konsentrasi amonium chlorida terhadap pertumbuhan bakteri

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----|---------------------------------|----|------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| G | .227 | 9 | .199 | .910 | 9 | .317 |
| Tg | .283 | 9 | .036 | .791 | 9 | .159 |
| Kc | .315 | 9 | .010 | .780 | 9 | .120 |

a. Lilliefors Significance Correction

Lampiran 60. Uji nonaditivitas menggunakan tukey untuk data konsentrasi amonium chlorida pertumbuhan bakteri

ANOVA with Tukey's Test for Nonadditivity

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|------------------------|--------------------|----|-------------|---------|------|
| Between People | | 1.340 | 8 | .167 | | |
| Within People | Between Items | 246.432 | 2 | 123.216 | 409.248 | .000 |
| | Residual Nonadditivity | 2.404 ^a | 1 | 2.404 | 14.945 | .002 |
| | Balance | 2.413 | 15 | .161 | | |
| | Total | 4.817 | 16 | .301 | | |
| | Total | 251.250 | 18 | 13.958 | | |
| Total | | 252.589 | 26 | 9.715 | | |

Grand Mean = 4,03885

a. Tukey's estimate of power to which observations must be raised to achieve additivity = -,791.

Lampiran 61. Data uji homogenitas untuk data konsentrasi amonium chlorida terhadap pertumbuhan bakteri

Test of Homogeneity of Variances

| | Levene Statistic | df1 | df2 | Sig. |
|----|------------------|-----|-----|------|
| G | 2.489 | 2 | 6 | .163 |
| Tg | 2.869 | 2 | 6 | .134 |
| Kc | 1.471 | 2 | 6 | .302 |

ANOVA

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----|----------------|----------------|----|-------------|---------|------|
| G | Between Groups | .172 | 2 | .086 | 8.105 | .020 |
| | Within Groups | .064 | 6 | .011 | | |
| | Total | .236 | 8 | | | |
| Tg | Between Groups | 5.761 | 2 | 2.880 | 108.513 | .000 |
| | Within Groups | .159 | 6 | .027 | | |
| | Total | 5.920 | 8 | | | |
| Kc | Between Groups | .001 | 2 | .001 | 125.868 | .000 |
| | Within Groups | .000 | 6 | .000 | | |
| | Total | .001 | 8 | | | |

Lampiran 62. Data uji tukey untuk data konsentrasi amonium chlorida terhadap pertumbuhan bakteri

G

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | |
|-----------|---|-------------------------|---------|
| | | 1 | 2 |
| AC 0,05% | 3 | 4,41200 | |
| AC 0,25% | 3 | 4,60600 | 4,60600 |
| AC 0,15% | 3 | | 4,74933 |
| Sig. | | .131 | .279 |

Means for groups in homogeneous subsets are displayed.

Tg

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | |
|-----------|---|-------------------------|---------|
| | | 1 | 2 |
| AC 0,15% | 3 | 6,31867 | |
| AC 0,25% | 3 | | 7,82033 |
| AC 0,05% | 3 | | 8,16000 |
| Sig. | | 1.000 | .095 |

Means for groups in homogeneous subsets are displayed.

Kc

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | |
|-----------|---|-------------------------|--------|
| | | 1 | 2 |
| AC 0,05% | 3 | ,08500 | |
| AC 0,25% | 3 | ,08867 | |
| AC 0,15% | 3 | | ,10967 |
| Sig. | | .152 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Lampiran 63. Uji normalitas untuk data konsentrasi amonium chlorida terhadap pertumbuhan bakteri

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----|---------------------------------|----|-------------------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| G | .149 | 9 | .200 [*] | .936 | 9 | .545 |
| Tg | .281 | 9 | .039 | .809 | 9 | .058 |
| Kc | .297 | 9 | .022 | .793 | 9 | .171 |

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Lampiran 64. Data uji tukey untuk data nonaditivitas konsentrasi amonium chlorida pertumbuhan bakteri

ANOVA with Tukey's Test for Nonadditivity

| | | | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|---------------|---------------|--------------------|----|-------------|---------|------|
| Between People | | | 1.730 | 8 | .216 | | |
| Within People | Between Items | | 268.706 | 2 | 134.353 | 297.126 | .000 |
| | Residual | Nonadditivity | 3.875 ^a | 1 | 3.875 | 17.303 | .001 |
| | | Balance | 3.359 | 15 | .224 | | |
| | Total | | 7.235 | 16 | .452 | | |
| Total | | | 275.940 | 18 | 15.330 | | |
| Total | | | 277.670 | 26 | 10.680 | | |

Grand Mean = 4,09185

a. Tukey's estimate of power to which observations must be raised to achieve additivity = -.941.

Lampiran 65. Data uji homogenitas untuk data konsentrasi amonium chlorida terhadap pertumbuhan bakteri

Test of Homogeneity of Variances

| | Levene Statistic | df1 | df2 | Sig. |
|----|------------------|-----|-----|------|
| G | .516 | 2 | 6 | .621 |
| Tg | 1.854 | 2 | 6 | .236 |
| Kc | .114 | 2 | 6 | .894 |

ANOVA

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----|----------------|----------------|----|-------------|---------|------|
| G | Between Groups | .398 | 2 | .199 | 35.665 | .000 |
| | Within Groups | .033 | 6 | .006 | | |
| | Total | .431 | 8 | | | |
| Tg | Between Groups | 8.412 | 2 | 4.206 | 211.144 | .000 |
| | Within Groups | .120 | 6 | .020 | | |
| | Total | 8.532 | 8 | | | |
| Kc | Between Groups | .001 | 2 | .001 | 263.870 | .000 |
| | Within Groups | .000 | 6 | .000 | | |
| | Total | .001 | 8 | | | |

Lampiran 66. Data uji tukey untuk data konsentrasi amonium chlorida terhadap pertumbuhan bakteri

G

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-----------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| AC 0,05% | 3 | 4,12433 | | |
| AC 0,25% | 3 | | 4,38867 | |
| AC 0,15% | 3 | | | 4,63933 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Tg

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-----------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| AC 0,15% | 3 | 6,46800 | | |
| AC 0,25% | 3 | | 8,20467 | |
| AC 0,05% | 3 | | | 8,73067 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Kc

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-----------|---|-------------------------|--------|--------|
| | | 1 | 2 | 3 |
| AC 0,05% | 3 | ,07900 | | |
| AC 0,25% | 3 | | ,08467 | |
| AC 0,15% | 3 | | | ,10733 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Lampiran 67. Data uji normalitas untuk data konsentrasi amonium chlorida pertumbuhan bakteri

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----|---------------------------------|----|------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| G | .313 | 9 | .011 | .743 | 9 | .066 |
| Tg | .282 | 9 | .038 | .793 | 9 | .072 |
| Kc | .307 | 9 | .014 | .761 | 9 | .073 |

a. Lilliefors Significance Correction

Lampiran 68. Uji nonaditivitas untuk data konsentrasi amonium chlorida terhadap pertumbuhan bakteri

ANOVA with Tukey's Test for Nonadditivity

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|------------------------|--------------------|----|-------------|---------|------|
| Between People | | 1.183 | 8 | .148 | | |
| Within People | Between Items | 279.598 | 2 | 139.799 | 232.134 | .000 |
| | Residual Nonadditivity | 3.343 ^a | 1 | 3.343 | 7.968 | .013 |
| | Balance | 6.293 | 15 | .420 | | |
| | Total | 9.636 | 16 | .602 | | |
| Total | | 289.233 | 18 | 16.069 | | |
| Total | | 290.417 | 26 | 11.170 | | |

Grand Mean = 4,04122

a. Tukey's estimate of power to which observations must be raised to achieve additivity = -1,111.

Lampiran 69. Uji homogenitas variansi untuk data konsentrasi amonium chlorida terhadap pertumbuhan bakteri

Test of Homogeneity of Variances

| | Levene Statistic | df1 | df2 | Sig. |
|----|------------------|-----|-----|------|
| G | 3.094 | 2 | 6 | .119 |
| Tg | 2.624 | 2 | 6 | .152 |
| Kc | 9.600 | 2 | 6 | .135 |

ANOVA

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----|----------------|----------------|----|-------------|---------|------|
| G | Between Groups | 2.301 | 2 | 1.151 | 1.093E3 | .000 |
| | Within Groups | .006 | 6 | .001 | | |
| | Total | 2.308 | 8 | | | |
| Tg | Between Groups | 8.481 | 2 | 4.240 | 852.312 | .000 |
| | Within Groups | .030 | 6 | .005 | | |
| | Total | 8.510 | 8 | | | |
| Kc | Between Groups | .001 | 2 | .001 | 1.037E3 | .000 |
| | Within Groups | .000 | 6 | .000 | | |
| | Total | .001 | 8 | | | |

Lampiran 70. Uji tukey untuk data konsentrasi sumber nitrogen terhadap pertumbuhan bakteri

G

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-----------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| AC 0,05% | 3 | 3,35867 | | |
| AC 0,25% | 3 | | 4,31900 | |
| AC 0,15% | 3 | | | 4,51633 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Tg

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-----------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| AC 0,15% | 3 | 6,64200 | | |
| AC 0,25% | 3 | | 8,33600 | |
| AC 0,05% | 3 | | | 8,93400 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Kc

Tukey HSD

| perlakuan | N | Subset for alpha = 0.05 | | |
|-----------|---|-------------------------|--------|--------|
| | | 1 | 2 | 3 |
| AC 0,05% | 3 | ,07767 | | |
| AC 0,25% | 3 | | ,08333 | |
| AC 0,15% | 3 | | | ,10400 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

Lampiran 71. Data OD kombinasi pada tiap isolat terhadap pertumbuhan bakteri

| Perlakuan ulangan | | Data OD jam ke- | | | | | | | | |
|-------------------|----|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 |
| UP.7 | u1 | 0,087 | 0,219 | 0,725 | 1,078 | 2,343 | 2,828 | 2,237 | 2,124 | 1,889 |
| | u2 | 0,088 | 0,226 | 0,743 | 1,111 | 2,262 | 2,588 | 2,206 | 1,897 | 1,611 |
| | u3 | 0,09 | 0,215 | 0,808 | 1,094 | 2,503 | 2,712 | 2,275 | 1,948 | 1,794 |
| | x | 0,088 | 0,220 | 0,759 | 1,094 | 2,369 | 2,709 | 2,239 | 1,990 | 1,765 |
| | sd | 0,002 | 0,006 | 0,044 | 0,017 | 0,123 | 0,120 | 0,035 | 0,119 | 0,141 |
| UP.8 | u1 | 0,092 | 0,191 | 1,018 | 1,186 | 1,502 | 1,792 | 1,53 | 1,263 | 1,028 |
| | u2 | 0,088 | 0,18 | 0,944 | 1,058 | 1,552 | 1,786 | 1,687 | 1,095 | 0,963 |
| | u3 | 0,088 | 0,178 | 0,931 | 1,164 | 1,51 | 1,66 | 1,682 | 1,218 | 0,931 |
| | x | 0,089 | 0,183 | 0,964 | 1,136 | 1,521 | 1,746 | 1,633 | 1,192 | 0,974 |
| | sd | 0,002 | 0,007 | 0,047 | 0,068 | 0,027 | 0,075 | 0,089 | 0,087 | 0,049 |
| UP.28 | u1 | 0,089 | 0,205 | 0,881 | 1,189 | 2,035 | 2,18 | 1,545 | 0,96 | 0,782 |
| | u2 | 0,086 | 0,209 | 0,894 | 1,196 | 1,92 | 1,814 | 1,554 | 0,892 | 0,779 |
| | u3 | 0,091 | 0,208 | 0,885 | 1,217 | 1,914 | 2,064 | 1,595 | 0,943 | 0,79 |
| | x | 0,089 | 0,207 | 0,887 | 1,201 | 1,956 | 2,019 | 1,565 | 0,932 | 0,784 |
| | sd | 0,003 | 0,002 | 0,007 | 0,015 | 0,068 | 0,187 | 0,027 | 0,035 | 0,006 |

| Perlakuan ulangan | | Cell Density ($\times 10^8$), Cell = (OD - 0,045) / 0,052 | | | | | | | | |
|-------------------|----|---|-------|--------|--------|--------|--------|--------|--------|--------|
| | | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 |
| UP.7 | u1 | 0,813 | 3,357 | 13,085 | 19,878 | 44,207 | 53,53 | 42,17 | 39,986 | 35,466 |
| | u2 | 0,834 | 3,492 | 13,431 | 20,513 | 42,644 | 48,912 | 41,572 | 35,624 | 30,122 |
| | u3 | 0,867 | 3,274 | 14,675 | 20,184 | 47,282 | 51,299 | 42,891 | 36,6 | 33,641 |
| | x | 0,838 | 3,374 | 13,730 | 20,192 | 44,711 | 51,247 | 42,211 | 37,403 | 33,076 |
| | sd | 0,027 | 0,110 | 0,836 | 0,318 | 2,360 | 2,309 | 0,660 | 2,289 | 2,716 |
| UP.8 | u1 | 0,913 | 2,818 | 18,721 | 21,944 | 28,03 | 33,601 | 28,56 | 23,431 | 18,907 |
| | u2 | 0,832 | 2,604 | 17,3 | 19,498 | 28,984 | 33,483 | 31,591 | 20,209 | 17,663 |
| | u3 | 0,838 | 2,567 | 17,054 | 21,528 | 28,177 | 31,076 | 31,482 | 22,56 | 17,053 |
| | x | 0,861 | 2,663 | 17,692 | 20,990 | 28,397 | 32,720 | 30,544 | 22,067 | 17,874 |
| | sd | 0,045 | 0,136 | 0,900 | 1,309 | 0,514 | 1,425 | 1,719 | 1,667 | 0,945 |
| UP.28 | u1 | 0,862 | 3,088 | 16,083 | 22,011 | 38,288 | 41,071 | 28,857 | 17,612 | 14,176 |
| | u2 | 0,807 | 3,159 | 16,338 | 22,142 | 36,074 | 34,037 | 29,027 | 16,304 | 14,118 |
| | u3 | 0,903 | 3,136 | 16,165 | 22,539 | 35,944 | 38,834 | 29,813 | 17,273 | 14,338 |
| | x | 0,857 | 3,128 | 16,195 | 22,231 | 36,769 | 37,981 | 29,232 | 17,063 | 14,211 |
| | sd | 0,048 | 0,036 | 0,130 | 0,275 | 1,317 | 3,594 | 0,510 | 0,679 | 0,114 |

Lampiran 72. Data pertumbuhan kombinasi pada tiap isolat

| isolat | ulangan | C0 (cell.T0) | C1 (cell.T.opt) | ΔT | G | Tg | $\mu = (\ln C1 - \ln C0) / \Delta T$ |
|--------|---------|--------------|-----------------|------------|-------|-------|--------------------------------------|
| UP.7 | u1 | 0,813 | 53,53 | 30 | 6,042 | 4,966 | 0,140 |
| | u2 | 0,834 | 48,912 | 30 | 5,875 | 5,107 | 0,136 |
| | u3 | 0,867 | 51,299 | 30 | 5,887 | 5,096 | 0,136 |
| | x | 0,838 | 51,247 | 30 | 5,934 | 5,056 | 0,137 |
| | sd | 0,027 | 2,309 | 0 | 0,093 | 0,078 | 0,002 |
| UP.8 | u1 | 0,913 | 33,601 | 30 | 5,202 | 5,767 | 0,120 |
| | u2 | 0,832 | 33,483 | 30 | 5,331 | 5,627 | 0,123 |
| | u3 | 0,838 | 31,076 | 30 | 5,213 | 5,755 | 0,120 |
| | x | 0,861 | 32,720 | 30 | 5,249 | 5,716 | 0,121 |
| | sd | 0,045 | 1,425 | 0 | 0,072 | 0,077 | 0,002 |
| UP.28 | u1 | 0,862 | 41,071 | 30 | 5,575 | 5,381 | 0,129 |
| | u2 | 0,807 | 34,037 | 30 | 5,399 | 5,557 | 0,125 |
| | u3 | 0,903 | 38,834 | 30 | 5,427 | 5,528 | 0,125 |
| | x | 0,857 | 37,981 | 30 | 5,467 | 5,489 | 0,126 |
| | sd | 0,048 | 3,594 | 0 | 0,095 | 0,094 | 0,002 |

Lampiran 73. Data Berat basah dan berat kering kombinasi pada tiap isolat terhadap pertumbuhan bakteri

| isolat | ulangan | BB | | | | | | | | |
|--------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 |
| UP.7 | u1 | 0,060 | 0,080 | 0,091 | 0,104 | 0,132 | 0,172 | 0,149 | 0,115 | 0,091 |
| | u2 | 0,056 | 0,071 | 0,075 | 0,093 | 0,139 | 0,157 | 0,148 | 0,116 | 0,092 |
| | u3 | 0,063 | 0,073 | 0,086 | 0,094 | 0,131 | 0,158 | 0,156 | 0,114 | 0,099 |
| | x | 0,060 | 0,075 | 0,084 | 0,097 | 0,134 | 0,162 | 0,151 | 0,115 | 0,094 |
| | sd | 0,003 | 0,005 | 0,008 | 0,006 | 0,004 | 0,009 | 0,004 | 0,001 | 0,004 |
| UP.8 | u1 | 0,057 | 0,064 | 0,080 | 0,082 | 0,103 | 0,113 | 0,104 | 0,081 | 0,075 |
| | u2 | 0,056 | 0,061 | 0,075 | 0,082 | 0,101 | 0,102 | 0,101 | 0,081 | 0,070 |
| | u3 | 0,059 | 0,061 | 0,076 | 0,088 | 0,103 | 0,112 | 0,104 | 0,087 | 0,071 |
| | x | 0,057 | 0,062 | 0,077 | 0,084 | 0,102 | 0,109 | 0,103 | 0,083 | 0,072 |
| | sd | 0,002 | 0,002 | 0,003 | 0,003 | 0,001 | 0,006 | 0,002 | 0,003 | 0,003 |
| UP.28 | u1 | 0,052 | 0,062 | 0,084 | 0,092 | 0,112 | 0,114 | 0,101 | 0,085 | 0,072 |
| | u2 | 0,052 | 0,059 | 0,078 | 0,086 | 0,102 | 0,115 | 0,103 | 0,079 | 0,068 |
| | u3 | 0,055 | 0,059 | 0,078 | 0,086 | 0,110 | 0,113 | 0,103 | 0,079 | 0,068 |
| | x | 0,053 | 0,060 | 0,080 | 0,088 | 0,108 | 0,114 | 0,102 | 0,081 | 0,069 |
| | sd | 0,001 | 0,002 | 0,003 | 0,004 | 0,005 | 0,001 | 0,001 | 0,003 | 0,002 |

| isolat | ulangan | BK | | | | | | | | |
|--------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 |
| UP.7 | u1 | 0,004 | 0,005 | 0,010 | 0,012 | 0,018 | 0,024 | 0,017 | 0,012 | 0,009 |
| | u2 | 0,004 | 0,005 | 0,008 | 0,012 | 0,019 | 0,020 | 0,017 | 0,012 | 0,009 |
| | u3 | 0,004 | 0,005 | 0,009 | 0,011 | 0,017 | 0,022 | 0,017 | 0,011 | 0,009 |
| | x | 0,004 | 0,005 | 0,009 | 0,012 | 0,018 | 0,022 | 0,017 | 0,012 | 0,009 |
| | sd | 0,000 | 0,000 | 0,001 | 0,001 | 0,001 | 0,002 | 0,000 | 0,000 | 0,000 |
| UP.8 | u1 | 0,004 | 0,005 | 0,009 | 0,011 | 0,014 | 0,016 | 0,015 | 0,010 | 0,009 |
| | u2 | 0,004 | 0,005 | 0,009 | 0,011 | 0,014 | 0,014 | 0,013 | 0,010 | 0,008 |
| | u3 | 0,004 | 0,005 | 0,009 | 0,011 | 0,014 | 0,015 | 0,014 | 0,010 | 0,009 |
| | x | 0,004 | 0,005 | 0,009 | 0,011 | 0,014 | 0,015 | 0,014 | 0,010 | 0,009 |
| | sd | 0,000 | 0,000 | 0,000 | 0,000 | 0,000 | 0,001 | 0,001 | 0,000 | 0,001 |
| UP.28 | u1 | 0,005 | 0,006 | 0,008 | 0,010 | 0,016 | 0,017 | 0,014 | 0,009 | 0,007 |
| | u2 | 0,005 | 0,006 | 0,008 | 0,010 | 0,014 | 0,017 | 0,015 | 0,009 | 0,007 |
| | u3 | 0,005 | 0,006 | 0,008 | 0,010 | 0,015 | 0,017 | 0,015 | 0,009 | 0,007 |
| | x | 0,005 | 0,006 | 0,008 | 0,010 | 0,015 | 0,017 | 0,015 | 0,009 | 0,007 |
| | sd | 0,000 | 0,000 | 0,000 | 0,000 | 0,001 | 0,000 | 0,000 | 0,000 | 0,000 |

Lampiran 74. Uji normalitas berat basah dan berat kering kombinasi pada tiap isolat terhadap pertumbuhan bakteri

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----|---------------------------------|----|-------------------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| od | .224 | 9 | .200 [*] | .877 | 9 | .146 |
| bb | .364 | 9 | .001 | .780 | 9 | .120 |
| bk | .285 | 9 | .034 | .910 | 9 | .317 |
| g | .209 | 9 | .200 [*] | .897 | 9 | .233 |
| tg | .196 | 9 | .200 [*] | .904 | 9 | .279 |
| kc | .223 | 9 | .200 [*] | .894 | 9 | .222 |

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Lampiran 75. Uji nonadivitas berat basah dan berat kering kombinasi pada tiap isolat terhadap pertumbuhan bakteri menggunakan tukey

ANOVA with Tukey's Test for Nonadditivity

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|------------------------|----------------------|----|-------------|---------|------|
| Between People | | 99.033 | 8 | 12.379 | | |
| Within People | Between Items | 11373.647 | 5 | 2274.729 | 185.711 | .000 |
| | Residual Nonadditivity | 474.980 ^a | 1 | 474.980 | 1.237E3 | .000 |
| | Balance | 14.971 | 39 | .384 | | |
| | Total | 489.951 | 40 | 12.249 | | |
| Total | | 11863.598 | 45 | 263.636 | | |
| Total | | 11962.631 | 53 | 225.710 | | |

Grand Mean = 8,64907

a. Tukey's estimate of power to which observations must be raised to achieve additivity = -,305.

Lampiran 76. Uji homogenitas variansi berat basah dan berat kering kombinasi pada tiap isolat terhadap pertumbuhan bakteri

Test of Homogeneity of Variances

| | Levene Statistic | df1 | df2 | Sig. |
|----|------------------|-----|-----|------|
| od | 1.245 | 2 | 6 | .353 |
| bb | 6.204 | 2 | 6 | .063 |
| bk | 2.400 | 2 | 6 | .171 |
| g | .310 | 2 | 6 | .744 |
| tg | .164 | 2 | 6 | .852 |
| kc | .390 | 2 | 6 | .693 |

Lampiran 77. Uji tukey data berat basah dan berat kering kombinasi pada tiap isolat terhadap pertumbuhan bakteri

ANOVA

| | | Sum of Squares | df | Mean Square | F | Sig. |
|----|----------------|----------------|----|-------------|--------|------|
| od | Between Groups | 546.920 | 2 | 273.460 | 40.454 | .000 |
| | Within Groups | 40.559 | 6 | 6.760 | | |
| | Total | 587.479 | 8 | | | |
| bb | Between Groups | .005 | 2 | .003 | 72.077 | .000 |
| | Within Groups | .000 | 6 | .000 | | |
| | Total | .005 | 8 | | | |
| bk | Between Groups | .000 | 2 | .000 | 23.400 | .001 |
| | Within Groups | .000 | 6 | .000 | | |
| | Total | .000 | 8 | | | |
| g | Between Groups | .737 | 2 | .368 | 48.625 | .000 |
| | Within Groups | .045 | 6 | .008 | | |
| | Total | .782 | 8 | | | |
| tg | Between Groups | .674 | 2 | .337 | 47.994 | .000 |
| | Within Groups | .042 | 6 | .007 | | |
| | Total | .716 | 8 | | | |
| kc | Between Groups | .000 | 2 | .000 | 45.683 | .000 |
| | Within Groups | .000 | 6 | .000 | | |
| | Total | .000 | 8 | | | |

od

Tukey HSD

| isolat | N | Subset for alpha = 0.05 | |
|--------|---|-------------------------|----------|
| | | 1 | 2 |
| UP.8 | 3 | 32,72000 | |
| UP.28 | 3 | 37,98067 | |
| UP.7 | 3 | | 51,24700 |
| Sig. | | .105 | 1.000 |

Means for groups in homogeneous subsets are displayed.

bb

Tukey HSD

| isolat | N | Subset for alpha = 0.05 | |
|--------|---|-------------------------|--------|
| | | 1 | 2 |
| UP.8 | 3 | ,10900 | |
| UP.28 | 3 | ,11400 | |
| UP.7 | 3 | | ,16233 |
| Sig. | | .593 | 1.000 |

Means for groups in homogeneous subsets are displayed.

bk

Tukey HSD

| isolat | N | Subset for alpha = 0.05 | |
|--------|---|-------------------------|--------|
| | | 1 | 2 |
| UP.8 | 3 | ,01500 | |
| UP.28 | 3 | ,01700 | |
| UP.7 | 3 | | ,02200 |
| Sig. | | .220 | 1.000 |

Means for groups in homogeneous subsets are displayed.

g

Tukey HSD

| isolat | N | Subset for alpha = 0.05 | | |
|--------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| UP.8 | 3 | 5,24867 | | |
| UP.28 | 3 | | 5,46700 | |
| UP.7 | 3 | | | 5,93467 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

tg

Tukey HSD

| isolat | N | Subset for alpha = 0.05 | | |
|--------|---|-------------------------|---------|---------|
| | | 1 | 2 | 3 |
| UP.7 | 3 | 5,05633 | | |
| UP.28 | 3 | | 5,48867 | |
| UP.8 | 3 | | | 5,71633 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

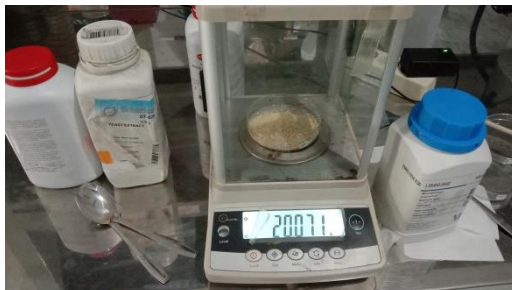
kc

Tukey HSD

| isolat | N | Subset for alpha = 0.05 | |
|--------|---|-------------------------|--------|
| | | 1 | 2 |
| UP.8 | 3 | ,12100 | |
| UP.28 | 3 | ,12633 | |
| UP.7 | 3 | | ,13733 |
| Sig. | | .050 | 1.000 |

Means for groups in homogeneous subsets are displayed.

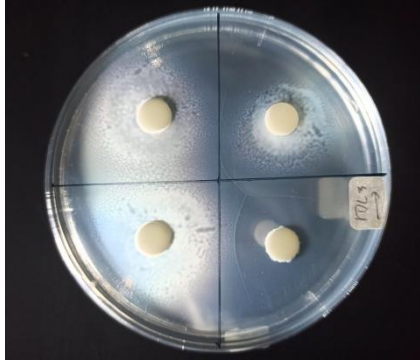
Lampiran 78. Dokumentasi selama penelitian



Persiapan dan penimbangan bahan untuk media kultur bakteri



Pembuatan media kultur bakteri



Hasil uji divusi bakteri simbion spons terhadap vibriosis



Pengukuran Zona bakteri menggunakan jangka sorong



Proses pengadukan dan menghomogenkan bakteri menggunakan orbital shaker



Proses pengamatan dan pencucian bakteri



Hasil pengamatan pertumbuhan bakteri periode puncak



Proses pemisahan supernatan bakteri menggunakan sentrifus



Proses inkubasi bakteri



Uji spektrofotometer



Menentukan nilai OD bakteri



Mikrowife untuk mengeringkan
sel bakteri

RIWAYAT HIDUP



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Penulis melanjutkan ke perguruan tinggi pada program studi Budidaya Perairan Fakultas Sains dan Teknologi Universitas Islam Nahdlatul Ulama Jepara pada tahun 2016. Sampai saat ini Penulis masih tercatat sebagai mahasiswa prodi Budidaya Perairan Fakultas Sains dan Teknologi Universitas Islam Nahdlatul Ulama Jepara.