

Lampiran –1 : Lembar Persetujuan Etik



KOMISI ETIK RISET
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PERSETUJUAN ETIK *Ethical Clearance* Nomor: 135/KER/FK/XII/2018

Komisi Etik Riset Fakultas Kedokteran Universitas Trisakti setelah mempelajari dengan seksama dan mendengarkan penjelasan dari peneliti utama tentang kemungkinan adanya dampak etis terhadap subyek riset, masyarakat dan lingkungan, menetapkan penelitian dengan judul:

"PENGARUH PEMBERIAN EKSTRAK BUAH KRANBERI (*Vaccinium macrocarpon Aiton*) TERHADAP STRES OKSIDATIF PADA ORGAN TIKUS *Sprague Dawley* (PARU, JANTUNG, HATI, GINJAL DAN OTAK) YANG DIINDUKSI HIPOKSIA"

Peneliti Utama : Kelvin

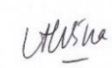
Lembaga/Tempat penelitian : FK Universitas Tarumanagara

Dinyatakan memenuhi persyaratan etik untuk dilaksanakan.

Jakarta, 18 Desember 2018

Ketua

Prof. DR. dr. Adi Hidayat, MS

Sekretaris

dr. Alvina SpPK

Lampiran –2 : Identifikasi Tanaman LIPI



LEMBAGA ILMU PENGETAHUAN INDONESIA
(INDONESIAN INSTITUTE OF SCIENCES)
PUSAT PENELITIAN BIOLOGI
(RESEARCH CENTER FOR BIOLOGY)

Cibinong Science Center, Jl. Raya Jakarta - Bogor KM. 46 Cibinong 16911
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Website : www.biologi.lipi.go.id



Cibinong, 7 Agustus 2018

Nomor : 292/IPH.1.01/If.07/VIII/2018
Lampiran : -
Perihal : Hasil identifikasi/ determinasi Tumbuhan

Kepada Yth.
Bpk./Ibu/Sdr(j). **Chindy Tjandra**
Mhs. Univ. Tarumanagara
Jl. Letjend S. Parman No.1
Jakarta - 11440

Dengan hormat,

Bersama ini kami sampaikan hasil identifikasi/determinasi tumbuhan yang Saudara kirimkan ke "Herbarium Bogoriense", Bidang Botani Pusat Penelitian Biologi-LIPI Bogor, adalah sebagai berikut :

| No. | No. Kol. | Jenis | Suku |
|-----|-----------|------------------------------------|-----------|
| 1 | Cranberry | <i>Vaccinium macrocarpon</i> Aiton | Ericaceae |

Demikian, semoga berguna bagi Saudara.

Kepala Bidang Botani
Pusat Penelitian Biologi-LIPI,

Dr. Joeni Setijo Rahajoe
NIP. 196706241993032004

C:\Users\windows 7\Desktop\dokumen lia\Ident 2018\Chindy Tjandra.doc\Ismail-Michael

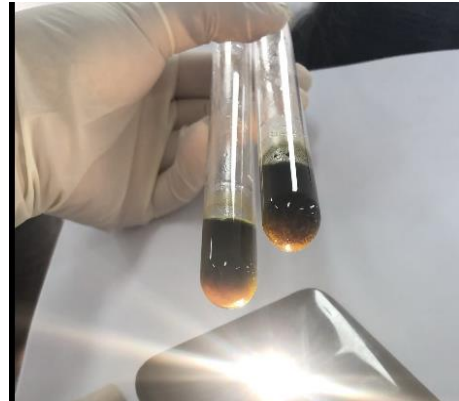
Page 1 of 1

Lampiran –3 : Hasil uji *in-vitro* dan *in-vivo*

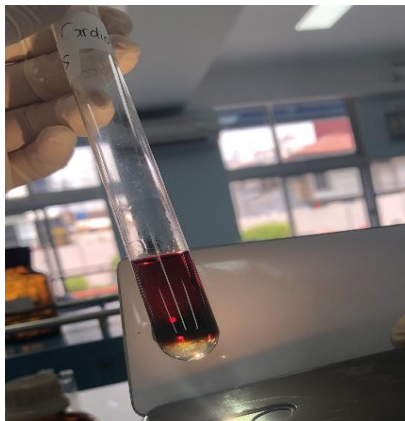
Gambar 1. Uji fitokimia alkaloid



Gambar 2. Uji Anthocyanin dan Betacyanin



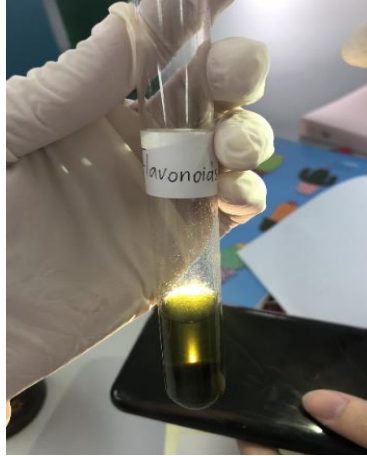
Gambar 3. Hasil Uji Cardioglikosida



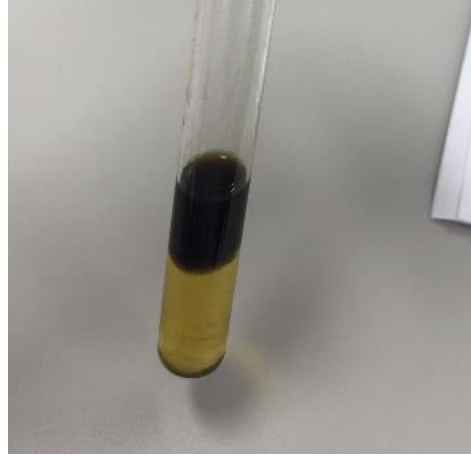
Gambar 4. Hasil Uji *coumarin*



Gambar 5. Hasil Uji Flavonoid



Gambar 6. Hasil Uji Glikosida



Gambar 7. Hasil Uji Fenol



Gambar 8. Hasil Uji Quinon



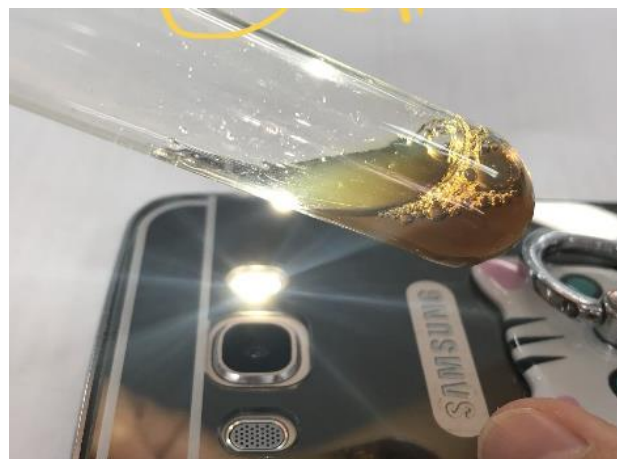
Gambar 9. Hasil uji steroid



Gambar 10. Hasil uji Terpenoid



Gambar 11. Hasil Uji Tannin



Linier regression Dpph *Cranberry*

| | Inhibisi (%) |
|---|--------------------------|
| Best-fit values | |
| Slope | 0.8152 |
| Y-intercept | 9.436 |
| X-intercept | -11.58 |
| 1/slope | 1.227 |
| Std. Error | |
| Slope | 0.1416 |
| Y-intercept | 8.135 |
| 95% Confidence Intervals | |
| Slope | 0.3645 to 1.266 |
| Y-intercept | -16.45 to 35.33 |
| X-intercept | -91.18 to 13.82 |
| Goodness of Fit | |
| R square | 0.9170 |
| Sy.x | 8.956 |
| Is slope significantly non-zero? | |
| F | 33.14 |
| DFn, DFd | 1, 3 |
| P value | 0.0104 |
| Deviation from zero? | Significant |
| Equation | $Y = 0.8152 * X + 9.436$ |
| Data | |
| Number of X values | 5 |
| Maximum number of Y replicates | 1 |
| Total number of values | 5 |
| Number of missing values | 0 |

Regresi linier DPPH vitamin C

| | Inhibisi (%) |
|----------------------------------|-------------------------|
| Best-fit values | |
| Slope | 6.381 |
| Y-intercept | 19.49 |
| X-intercept | -3.055 |
| 1/slope | 0.1567 |
| Std. Error | |
| Slope | 0.1261 |
| Y-intercept | 0.8362 |
| 95% Confidence Intervals | |
| Slope | 5.980 to 6.782 |
| Y-intercept | 16.83 to 22.16 |
| X-intercept | -3.690 to -2.492 |
| Goodness of Fit | |
| R square | 0.9988 |
| Sy.x | 0.7973 |
| Is slope significantly non-zero? | |
| F | 2562 |
| DFn, DFd | 1, 3 |
| P value | <0.0001 |
| Deviation from zero? | Significant |
| Equation | $Y = 6.381 * X + 19.49$ |
| Data | |
| Number of X values | 5 |
| Maximum number of Y replicates | 1 |
| Total number of values | 5 |
| Number of missing values | 0 |

Regresi linier standar fenolik tannin

| | Absorbansi |
|---|-------------------------------|
| Best-fit values | |
| Slope | 0.0009100 |
| Y-intercept | 0.06640 |
| X-intercept | -72.97 |
| 1/slope | 1099 |
| Std. Error | |
| Slope | 6.285e-005 |
| Y-intercept | 0.03266 |
| 95% Confidence Intervals | |
| Slope | 0.0007100 to 0.001110 |
| Y-intercept | -0.03754 to 0.1703 |
| X-intercept | -238.2 to 34.07 |
| Goodness of Fit | |
| R square | 0.9859 |
| Sy.x | 0.01988 |
| Is slope significantly non-zero? | |
| F | 209.6 |
| DFn, DFd | 1, 3 |
| P value | 0.0007 |
| Deviation from zero? | Significant |
| Equation | $Y = 0.0009100 * X + 0.06640$ |
| Data | |
| Number of X values | 5 |
| Maximum number of Y replicates | 1 |
| Total number of values | 5 |
| Number of missing values | 0 |

Linier regresi standar alkaloid

| | Absorbansi |
|----------------------------------|------------------------------|
| Best-fit values | |
| Slope | 0.001715 |
| Y-intercept | 0.04810 |
| X-intercept | -28.05 |
| 1/slope | 583.1 |
| Std. Error | |
| Slope | 0.0002174 |
| Y-intercept | 0.01442 |
| 95% Confidence Intervals | |
| Slope | 0.001023 to 0.002407 |
| Y-intercept | 0.002209 to 0.09399 |
| X-intercept | -89.38 to -0.9434 |
| Goodness of Fit | |
| R square | 0.9540 |
| Sy.x | 0.01375 |
| Is slope significantly non-zero? | |
| F | 62.24 |
| DFn, DFd | 1, 3 |
| P value | 0.0042 |
| Deviation from zero? | Significant |
| Equation | $Y = 0.001715 * X + 0.04810$ |
| Data | |
| Number of X values | 5 |
| Maximum number of Y replicates | 1 |
| Total number of values | 5 |
| Number of missing values | 0 |

Linier regresi BSLT

| Angka Mortalitas (%) | |
|----------------------------------|-------------------------|
| Best-fit values | |
| Slope | 43.37 |
| Y-intercept | -44.76 |
| X-intercept | 1.032 |
| 1/slope | 0.02306 |
| Std. Error | |
| Slope | 9.891 |
| Y-intercept | 22.82 |
| 95% Confidence Intervals | |
| Slope | 0.8133 to 85.93 |
| Y-intercept | -142.9 to 53.41 |
| X-intercept | -59.02 to 1.851 |
| Goodness of Fit | |
| R square | 0.9058 |
| Sy.x | 15.22 |
| Is slope significantly non-zero? | |
| F | 19.23 |
| DFn, DFd | 1, 2 |
| P value | 0.0483 |
| Deviation from zero? | Significant |
| Equation | $Y = 43.37 * X - 44.76$ |
| Data | |
| Number of X values | 4 |
| Maximum number of Y replicates | 1 |
| Total number of values | 4 |
| Number of missing values | 0 |

Regresi linier standar MDA

| Rata-Rata Absorbansi | |
|----------------------------------|-----------------------------|
| Best-fit values | |
| Slope | 0.1191 |
| Y-intercept | 0.005342 |
| X-intercept | -0.04487 |
| 1/slope | 8.398 |
| Std. Error | |
| Slope | 0.001715 |
| Y-intercept | 0.002021 |
| 95% Confidence Intervals | |
| Slope | 0.1143 to 0.1238 |
| Y-intercept | -0.0002676 to 0.01095 |
| X-intercept | -0.09469 to 0.002187 |
| Goodness of Fit | |
| R square | 0.9992 |
| Sy.x | 0.003554 |
| Is slope significantly non-zero? | |
| F | 4822 |
| DFn, DFd | 1, 4 |
| P value | <0.0001 |
| Deviation from zero? | Significant |
| Equation | $Y = 0.1191 * X + 0.005342$ |
| Data | |
| Number of X values | 6 |
| Maximum number of Y replicates | 1 |
| Total number of values | 6 |
| Number of missing values | 0 |

Absorbansi standar MDA

| Standar MDA | Kadar MDA (nmol/mL) | Rata-rata Absorbansi |
|--------------------|----------------------------|-----------------------------|
| S1 | 0,078 | 0,012 |
| S2 | 0,156 | 0,021 |
| S3 | 0,312 | 0,043 |
| S4 | 0,625 | 0,085 |
| S5 | 1,250 | 0,156 |
| S6 | 2,500 | 0,301 |

Tabel hasil absorbansi darah kelompok normoksia cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,057 | 0,063 | 0,060 | 0,066 |
| 2 | 0,081 | 0,079 | 0,080 | |
| 3 | 0,069 | 0,070 | 0,070 | |
| 4 | 0,056 | 0,055 | 0,054 | |

Tabel Hasil Absorbansi Darah Kelompok Hipoksia 1 Hari Cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,089 | 0,088 | 0,089 | 0,089 |
| 2 | 0,061 | 0,063 | 0,062 | |
| 3 | 0,119 | 0,116 | 0,118 | |
| 4 | 0,091 | 0,087 | 0,089 | |

Tabel hasil absorbansi darah kelompok hipoksia 7 hari cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,115 | 0,114 | 0,115 | 0,115 |
| 2 | 0,072 | 0,070 | 0,071 | |
| 3 | 0,115 | 0,111 | 0,113 | |
| 4 | 0,161 | 0,163 | 0,162 | |

Tabel hasil absorbansi darah kelompok hipoksia 14 hari cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,161 | 0,165 | 0,164 | 0,162 |
| 2 | 0,169 | 0,173 | 0,171 | |
| 3 | 0,155 | 0,157 | 0,156 | |
| 4 | 0,158 | 0,160 | 0,159 | |

Tabel hasil absorbansi darah kelompok normoksia tidak cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,089 | 0,085 | 0,087 | 0,077 |
| 2 | 0,069 | 0,073 | 0,071 | |
| 3 | 0,068 | 0,070 | 0,069 | |
| 4 | 0,085 | 0,080 | 0,083 | |

Tabel hasil absorbansi darah kelompok hipoksia 1 tidak cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,106 | 0,104 | 0,105 | 0,108 |
| 2 | 0,112 | 0,109 | 0,111 | |
| 3 | 0,107 | 0,109 | 0,106 | |
| 4 | 0,111 | 0,115 | 0,113 | |

Tabel hasil absorbansi darah kelompok hipoksia 7 hari tidak cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,135 | 0,139 | 0,137 | 0,141 |
| 2 | 0,151 | 0,147 | 0,149 | |
| 3 | 0,129 | 0,134 | 0,132 | |
| 4 | 0,144 | 0,143 | 0,144 | |

Tabel hasil absorbansi darah kelompok hipoksia 14 hari tidak cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,176 | 0,178 | 0,177 | 0,184 |
| 2 | 0,192 | 0,193 | 0,193 | |
| 3 | 0,189 | 0,185 | 0,187 | |
| 4 | 0,181 | 0,177 | 0,179 | |

Tabel hasil absorbansi hati kelompok normoksia cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,070 | 0,068 | 0,069 | 0,069 |
| 2 | 0,069 | 0,067 | 0,068 | |
| 3 | 0,065 | 0,063 | 0,064 | |
| 4 | 0,074 | 0,076 | 0,075 | |

Tabel hasil absorbansi hati kelompok hipoksia 1 hari cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,090 | 0,094 | 0,092 | 0,111 |
| 2 | 0,116 | 0,112 | 0,114 | |
| 3 | 0,124 | 0,126 | 0,125 | |
| 4 | 0,111 | 0,115 | 0,113 | |

Tabel hasil absorbansi hati kelompok hipoksia 7 hari cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,138 | 0,142 | 0,140 | 0,143 |
| 2 | 0,134 | 0,138 | 0,136 | |
| 3 | 0,158 | 0,164 | 0,161 | |
| 4 | 0,140 | 0,136 | 0,138 | |

Tabel hasil absorbansi hati kelompok hipoksia 14 hari cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,174 | 0,178 | 0,176 | 0,180 |
| 2 | 0,178 | 0,184 | 0,181 | |
| 3 | 0,199 | 0,203 | 0,201 | |
| 4 | 0,160 | 0,166 | 0,163 | |

Tabel hasil absorbansi hati kelompok normoksia tidak cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,090 | 0,088 | 0,089 | 0,090 |
| 2 | 0,114 | 0,116 | 0,115 | |
| 3 | 0,064 | 0,068 | 0,066 | |
| 4 | 0,090 | 0,092 | 0,091 | |

Tabel hasil absorbansi hati kelompok hipoksia 1 hari tidak cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,134 | 0,136 | 0,135 | 0,145 |
| 2 | 0,158 | 0,156 | 0,157 | |
| 3 | 0,153 | 0,159 | 0,156 | |
| 4 | 0,135 | 0,131 | 0,133 | |

Tabel hasil absorbansi hati kelompok hipoksia 7 hari tidak cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,179 | 0,177 | 0,178 | 0,174 |
| 2 | 0,184 | 0,186 | 0,185 | |
| 3 | 0,163 | 0,161 | 0,162 | |
| 4 | 0,169 | 0,177 | 0,173 | |

Tabel hasil absorbansi hati kelompok hipoksia 14 hari tidak cekok

| Tikus | Absorbansi Uji 1 | Absorbansi Uji 2 | Rata-rata Absorbansi Uji 1 dan 2 | Rata-rata Nilai Absorbansi |
|--------------|-------------------------|-------------------------|---|-----------------------------------|
| 1 | 0,208 | 0,212 | 0,210 | 0,206 |
| 2 | 0,218 | 0,222 | 0,220 | |
| 3 | 0,186 | 0,190 | 0,188 | |
| 4 | 0,204 | 0,206 | 0,205 | |

Tabel uji sebaran data MDA darah cekok

| | NORMOKSIA | Hipoksia 1 hari | Hipoksia 7 hari | Hipoksia 14 hari |
|-------------------------------------|-------------|-----------------|-----------------|------------------|
| Test for normal distribution | | | | |
| D'Agostino & Pearson test | | N too small | N too small | N too small |
| K2 | N too small | small | N too small | small |
| P value | | | | |
| Passed normality test (alpha=0.05)? | | | | |
| P value summary | | | | |
| Shapiro-Wilk test | | | | |
| W | 0.9376 | 0.9992 | 0.8719 | 0.9595 |
| P value | 0.6396 | 0.9976 | 0.3052 | 0.7760 |
| Passed normality test (alpha=0.05)? | Yes | Yes | Yes | Yes |
| P value summary | ns | ns | ns | ns |
| Number of values | 4 | 4 | 4 | 4 |

Tabel Mann whitney normoksia vs hipoksia 1 cekok

| | |
|-------------------------------------|----------------------|
| Table Analyzed | MDA darah sample (+) |
| Column B | Hipoksia 1 hari |
| vs. | vs. |
| Column A | NORMOKSIA |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different (P < 0.05)? | Yes |

| | |
|-----------------------------|-------------|
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,B | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 0.4545, n=4 |
| Median of column B | 0.7110, n=4 |
| Difference: Actual | 0.2565 |
| Difference: Hodges-Lehmann | 0.2525 |

Tabel uji mann whittney normoksia vs hipoksia 7 hari cekok

| | |
|-------------------------------------|----------------------|
| Table Analyzed | MDA darah sample (+) |
| Column C | Hipoksia 7 hari |
| vs. | vs. |
| Column A | NORMOKSIA |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different (P < 0.05)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,C | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 0.4545, n=4 |
| Median of column C | 0.9125, n=4 |
| Difference: Actual | 0.4580 |
| Difference: Hodges-Lehmann | 0.4590 |

Tabel uji Mann whittney normoksia vs hipoksia 14 hari cekok

| | |
|---|----------------------|
| Table Analyzed | MDA darah sample (+) |
| Column D | Hipoksia 14 hari |
| vs. | vs. |
| Column A | NORMOKSIA |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different ($P < 0.05$)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,D | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 0.4545, n=4 |
| Median of column D | 1.310, n=4 |
| Difference: Actual | 0.8555 |
| Difference: Hodges-Lehmann | 0.8520 |

Tabel uji Mann Whittney normoksia vs hipoksia 1 hari tidak dicekok

| | |
|-------------------|----------------------|
| Table Analyzed | MDA darah sample (-) |
| Column B | H1 |
| vs. | vs. |
| Column A | normoksia |
| Mann Whitney test | |
| P value | 0.0286 |

| | |
|-------------------------------------|-------------|
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different (P < 0.05)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,B | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 0.6015, n=4 |
| Median of column B | 0.8660, n=4 |
| Difference: Actual | 0.2645 |
| Difference: Hodges-Lehmann | 0.2700 |

Tabel uji Mann Whittney normoksia vs hipoksia 7 hari tidak dicekok

| | |
|-------------------------------------|----------------------|
| Table Analyzed | MDA darah sampel (-) |
| Column C | H7 |
| vs. | vs. |
| Column A | normoksia |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different (P < 0.05)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,C | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 0.6015, n=4 |

| | |
|----------------------------|------------|
| Median of column C | 1.135, n=4 |
| Difference: Actual | 0.5330 |
| Difference: Hodges-Lehmann | 0.5215 |

Tabel uji Mann Whittney normoksia vs hipoksia 14 hari tidak cekok

| | |
|---|----------------------|
| Table Analyzed | MDA darah sample (-) |
| Column D | H14 |
| vs. | vs. |
| Column A | normoksia |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different ($P < 0.05$)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,D | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 0.6015, n=4 |
| Median of column D | 1.493, n=4 |
| Difference: Actual | 0.8910 |
| Difference: Hodges-Lehmann | 0.9080 |

Tabel uji persebaran data MDA darah tidak cekok

| | normoksia | H1 | H7 | H14 |
|-------------------------------------|-------------|-------------|-------------|-------------|
| Test for normal distribution | | | | |
| D'Agostino & Pearson test | | | | |
| K2 | N too small | N too small | N too small | N too small |
| P value | | | | |
| Passed normality test (alpha=0.05)? | | | | |
| P value summary | | | | |
| Shapiro-Wilk test | | | | |
| W | 0.8792 | 0.8729 | 0.9709 | 0.9282 |
| P value | 0.3354 | 0.3090 | 0.8468 | 0.5836 |
| Passed normality test (alpha=0.05)? | Yes | Yes | Yes | Yes |
| P value summary | ns | ns | ns | ns |
| Number of values | 4 | 4 | 4 | 4 |

Tabel uji Mann Whittney normoksia vs hipoksia 1 cekok

| | |
|-------------------------------------|-----------------------|
| Table Analyzed | MDA jaringan hati (+) |
| Column B | hipoksia 1 |
| vs. | vs. |
| Column A | normoksia |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different (P < 0.05)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,B | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |

| | |
|----------------------------|-------------|
| Median of column A | 0.5300, n=4 |
| Median of column B | 0.9075, n=4 |
| Difference: Actual | 0.3775 |
| Difference: Hodges-Lehmann | 0.3775 |

Uji Mann whittney normoksia vs hipoksia 7 hari cekok

| | |
|---|-----------------------|
| Table Analyzed | MDA jaringan hati (+) |
| Column C | hipoksia 7 |
| vs. | vs. |
| Column A | normoksia |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different ($P < 0.05$)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,C | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 0.5300, n=4 |
| Median of column C | 1.124, n=4 |
| Difference: Actual | 0.5940 |
| Difference: Hodges-Lehmann | 0.5980 |

Tabel Uji Mann Whittney normoksia vs hipoksia 14 hari cekok

| | |
|----------------|-----------------------|
| Table Analyzed | MDA jaringan hati (+) |
| Column D | hipoksia 14 |
| vs. | vs. |

| | |
|-------------------------------------|-------------|
| Column A | normoksia |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different (P < 0.05)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,D | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 0.5300, n=4 |
| Median of column D | 1.453, n=4 |
| Difference: Actual | 0.9230 |
| Difference: Hodges-Lehmann | 0.9225 |

Uji persebaran data jaringan cekok

| | normoksia | hipoksia 1 | hipoksia 7 | hipoksia 14 |
|-------------------------------------|-------------|-------------|-------------|-------------|
| Test for normal distribution | | | | |
| D'Agostino & Pearson test | | | | |
| K2 | N too small | N too small | N too small | N too small |
| P value | | | | |
| Passed normality test (alpha=0.05)? | | | | |
| P value summary | | | | |
| Shapiro-Wilk test | | | | |
| W | 0.9592 | 0.9186 | 0.7407 | 0.9668 |
| P value | 0.7741 | 0.5292 | 0.0315 | 0.8218 |
| Passed normality test (alpha=0.05)? | Yes | Yes | No | Yes |
| P value summary | ns | ns | * | Ns |
| Number of values | 4 | 4 | 4 | 4 |

Uji Mann whittney MDA jaringan normoksia vs hipoksia 1 tidak cekok

| | |
|---|-----------------------|
| Table Analyzed | MDA jaringan hati (-) |
| Column B | hipoksia 1 |
| vs. | vs. |
| Column A | Normoksia |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different ($P < 0.05$)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,B | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 0.7105, n=4 |
| Median of column B | 1.177, n=4 |
| Difference: Actual | 0.4660 |
| Difference: Hodges-Lehmann | 0.4660 |

Uji Mann Whittney MDA jaringan normoksia vs hipoksia 7 hari tidak cekok

| | |
|-------------------------------|-----------------------|
| Table Analyzed | MDA jaringan hati (-) |
| Column C | hipoksia 7 |
| vs. | vs. |
| Column A | Normoksia |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |

| | |
|---|-------------|
| Significantly different ($P < 0.05$)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,C | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 0.7105, n=4 |
| Median of column C | 1.432, n=4 |
| Difference: Actual | 0.7210 |
| Difference: Hodges-Lehmann | 0.7210 |

Uji Mann Whittney MDA jaringan normoksia vs hipoksia 14 hari tidak cekok

| | |
|---|-----------------------|
| Table Analyzed | MDA jaringan hati (-) |
| Column D | hipoksia 14 |
| vs. | vs. |
| Column A | Normoksia |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different ($P < 0.05$)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,D | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 0.7105, n=4 |
| Median of column D | 1.700, n=4 |
| Difference: Actual | 0.9895 |
| Difference: Hodges-Lehmann | 0.9895 |

Uji persebaran data MDA jaringan tidak cekok

| | Normoksia | hipoksia 1 | hipoksia 7 | hipoksia 14 |
|-------------------------------------|-------------|-------------|-------------|-------------|
| Test for normal distribution | | | | |
| D'Agostino & Pearson test | | | | |
| K2 | N too small | N too small | N too small | N too small |
| P value | | | | |
| Passed normality test (alpha=0.05)? | | | | |
| P value summary | | | | |
| Shapiro-Wilk test | | | | |
| W | 0.9618 | 0.7846 | 0.9856 | 0.9755 |
| P value | 0.7905 | 0.0774 | 0.9342 | 0.8751 |
| Passed normality test (alpha=0.05)? | Yes | Yes | Yes | Yes |
| P value summary | ns | ns | ns | ns |
| Number of values | 4 | 4 | 4 | 4 |

Perbandingan hati normoksia tidak cekok dan cekok

| | Perbandingan MDA hati normoksia (+) dan normoksia (-) |
|-------------------------------------|---|
| Table Analyzed | (-) |
| Column B | normoksia - |
| vs. | vs. |
| Column A | normoksia + |
| Mann Whitney test | |
| P value | 0.2000 |
| Exact or approximate P value? | Exact |
| P value summary | ns |
| Significantly different (P < 0.05)? | No |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,B | 13 , 23 |

| | |
|----------------------------|-------------|
| Mann-Whitney U | 3 |
| Difference between medians | |
| Median of column A | 0.5300, n=4 |
| Median of column B | 0.7105, n=4 |
| Difference: Actual | 0.1805 |
| Difference: Hodges-Lehmann | 0.1805 |

Perbandingan hati hipoksia 1 hari cekok dan tidak cekok

| | |
|-------------------------------------|---|
| | perbandingan MDA hati hipoksia 1 (+) dan hipoksia 1 |
| Table Analyzed | (-) |
| Column B | hipoksia 1 (-) |
| vs. | vs. |
| Column A | hipoksia 1 (+) |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different (P < 0.05)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,B | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 0.9075, n=4 |
| Median of column B | 1.177, n=4 |
| Difference: Actual | 0.2690 |
| Difference: Hodges-Lehmann | 0.3050 |

Perbandingan hati hipoksia 7 hari tidak cekok dan cekok

| | |
|-------------------------------------|---|
| | perbandingan MDA hati hipoksia 7 (+) dan hipoksia 7 |
| Table Analyzed | (-) |
| Column B | hipoksia 7 (-) |
| vs. | vs. |
| Column A | hipoksia 7 (+) |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different (P < 0.05)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,B | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 1.124, n=4 |
| Median of column B | 1.432, n=4 |
| Difference: Actual | 0.3075 |
| Difference: Hodges-Lehmann | 0.2860 |

Perbandingan hati hipoksia 14 hari tidak cekok dan cekok

| | |
|-------------------------------|--|
| | perbandingan MDA hati hipoksia 14 (+) dan hipoksia |
| Table Analyzed | 14 (-) |
| Column B | hipoksia 14 (-) |
| vs. | vs. |
| Column A | hipoksia 14 (+) |
| Mann Whitney test | |
| P value | 0.0571 |
| Exact or approximate P value? | Exact |

| | |
|-------------------------------------|------------|
| P value summary | ns |
| Significantly different (P < 0.05)? | No |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,B | 11 , 25 |
| Mann-Whitney U | 1 |
| Difference between medians | |
| Median of column A | 1.453, n=4 |
| Median of column B | 1.700, n=4 |
| Difference: Actual | 0.2470 |
| Difference: Hodges-Lehmann | 0.2310 |

Perbandingan darah normoksia cekok dan tidak cekok

| | |
|-------------------------------------|---|
| Table Analyzed | MDA darah normoksia (+) dan darah normoksia (-) |
| Column B | Darah normoksia (-) |
| vs. | vs. |
| Column A | Darah normoksia (+) |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different (P < 0.05)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,B | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 0.4545, n=4 |
| Median of column B | 0.6015, n=4 |

| | |
|----------------------------|--------|
| Difference: Actual | 0.1470 |
| Difference: Hodges-Lehmann | 0.1385 |

Perbandingan darah hipoksia 1 hari cekok dan tidak cekok

| | |
|-------------------------------------|---|
| Table Analyzed | MDA darah hipoksia 1 (+) dan darah hipoksia 1 (-) |
| Column B | darah hipoksia 1 (-) |
| vs. | vs. |
| Column A | darah hipoksia 1 (+) |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different (P < 0.05)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,B | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 0.7110, n=4 |
| Median of column B | 0.8660, n=4 |
| Difference: Actual | 0.1550 |
| Difference: Hodges-Lehmann | 0.1605 |

Perbandingan darah hipoksia 7 hari cekok dan tidak cekok

| | |
|----------------|---|
| Table Analyzed | MDA darah hipoksia 7 (+) dan darah hipoksia 7 (-) |
| Column B | hipoksia 7(-) |
| vs. | vs. |
| Column A | hipoksia 7 (+) |

| | |
|-------------------------------------|-------------|
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different (P < 0.05)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,B | 10 , 26 |
| Mann-Whitney U | 0 |
| Difference between medians | |
| Median of column A | 0.9125, n=4 |
| Median of column B | 1.135, n=4 |
| Difference: Actual | 0.2220 |
| Difference: Hodges-Lehmann | 0.2065 |

Perbandingan darah hipoksia 14 hari cekok dan tidak cekok

| | |
|-------------------------------------|---|
| Table Analyzed | MDA darah hipoksia 14 (+) dan darah hipoksia 14 (-) |
| Column B | hipoksia 14 (-) |
| vs. | vs. |
| Column A | hipoksia 14 (+) |
| Mann Whitney test | |
| P value | 0.0286 |
| Exact or approximate P value? | Exact |
| P value summary | * |
| Significantly different (P < 0.05)? | Yes |
| One- or two-tailed P value? | Two-tailed |
| Sum of ranks in column A,B | 10 , 26 |
| Mann-Whitney U | 0 |

| | |
|----------------------------|------------|
| Difference between medians | |
| Median of column A | 1.310, n=4 |
| Median of column B | 1.493, n=4 |
| Difference: Actual | 0.1825 |
| Difference: Hodges-Lehmann | 0.1855 |

Uji korelasi *Pearson* MDA darah dan hati cekok

| | |
|-----------------------------|--------------------------------------|
| | MDA jaringan + vs. MDA darah + |
| <hr/> | |
| Pearson r | |
| r | 0.9859 |
| 95% confidence interval | 0.4719 to 0.9997 |
| R squared | 0.9719 |
| P value | |
| P (two-tailed) | 0.0141 |
| P value summary | * |
| Significant? (alpha = 0.05) | Yes |
| Number of XY Pairs | 4 |

Linier regresi MDA darah dan hati cekok

| | |
|-----------------|-------------|
| | MDA darah + |
| <hr/> | |
| Best-fit values | |
| Slope | 0.8934 |
| Y-intercept | -0.06129 |
| X-intercept | 0.06860 |
| 1/slope | 1.119 |
| Std. Error | |

| | |
|----------------------------------|----------------------------|
| Slope | 0.1074 |
| Y-intercept | 0.1162 |
| 95% Confidence Intervals | |
| Slope | 0.4314 to 1.355 |
| Y-intercept | -0.5613 to 0.4387 |
| X-intercept | -0.9871 to 0.4267 |
| Goodness of Fit | |
| R square | 0.9719 |
| Sy.x | 0.07502 |
| Is slope significantly non-zero? | |
| F | 69.24 |
| DFn, DFd | 1, 2 |
| P value | 0.0141 |
| Deviation from zero? | Significant |
| Equation | $Y = 0.8934 * X - 0.06129$ |
| Data | |
| Number of X values | 4 |
| Maximum number of Y replicates | 1 |
| Total number of values | 4 |
| Number of missing values | 0 |

Uji korelasi pearson MDA darah dan hati tidak cekok

MDA jaringan -

vs.

MDA darah -

Pearson r

r 0.9774

| | |
|-----------------------------|------------------|
| 95% confidence interval | 0.2686 to 0.9995 |
| R squared | 0.9553 |
| P value | |
| P (two-tailed) | 0.0226 |
| P value summary | * |
| Significant? (alpha = 0.05) | Yes |
| Number of XY Pairs | 4 |

Linier regresi MDA darah dan hati tidak cekok

MDA darah -

Best-fit values

| | |
|-------------|---------|
| Slope | 0.9083 |
| Y-intercept | -0.1045 |
| X-intercept | 0.1151 |
| 1/slope | 1.101 |

Std. Error

| | |
|-------------|--------|
| Slope | 0.1390 |
| Y-intercept | 0.1802 |

95% Confidence Intervals

| | |
|-------------|-------------------|
| Slope | 0.3103 to 1.506 |
| Y-intercept | -0.8798 to 0.6708 |
| X-intercept | -2.101 to 0.6009 |

Goodness of Fit

| | |
|----------|---------|
| R square | 0.9553 |
| Sy.x | 0.09957 |

Is slope significantly non-zero?

| | |
|----------|--------|
| F | 42.71 |
| DFn, DFd | 1, 2 |
| P value | 0.0226 |

| | |
|--------------------------------|---------------------------|
| Deviation from zero? | Significant |
| Equation | $Y = 0.9083 * X - 0.1045$ |
| Data | |
| Number of X values | 4 |
| Maximum number of Y replicates | 1 |
| Total number of values | 4 |
| Number of missing values | 0 |

Lampiran -4: Dokumentasi dan Alat Penelitian



Gambar 1. Buah *cranberry* (*Vaccinium macrocarpon* Aiton)



Gambar 2. Potongan buah *cranberry* (*Vaccinium macrocarpon* Aiton)



Gambar 3. Pengeringan buah *cranberry* (*Vaccinium macrocarpon* Aiton)



Gambar 4. Maserasi



Gambar 5. Pembiusan Tikus



Gambar 6. Tabung Gas



Gambar 7. Larutan Cekok Tikus



Gambar 8. Pencekokan Tikus Dengan Ekstrak *Cranberry*

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