

**LAMPIRAN****Lampiran 1 Pernyataan Keaslian Tulisan****PERNYATAAN KEASLIAN TULISAN**

Saya yang bertanda tangan di bawah ini:

Nama : Riska Rosida

NIM : 105070501111011

Program Studi : Farmasi

Fakultas Kedokteran Universitas Brawijaya

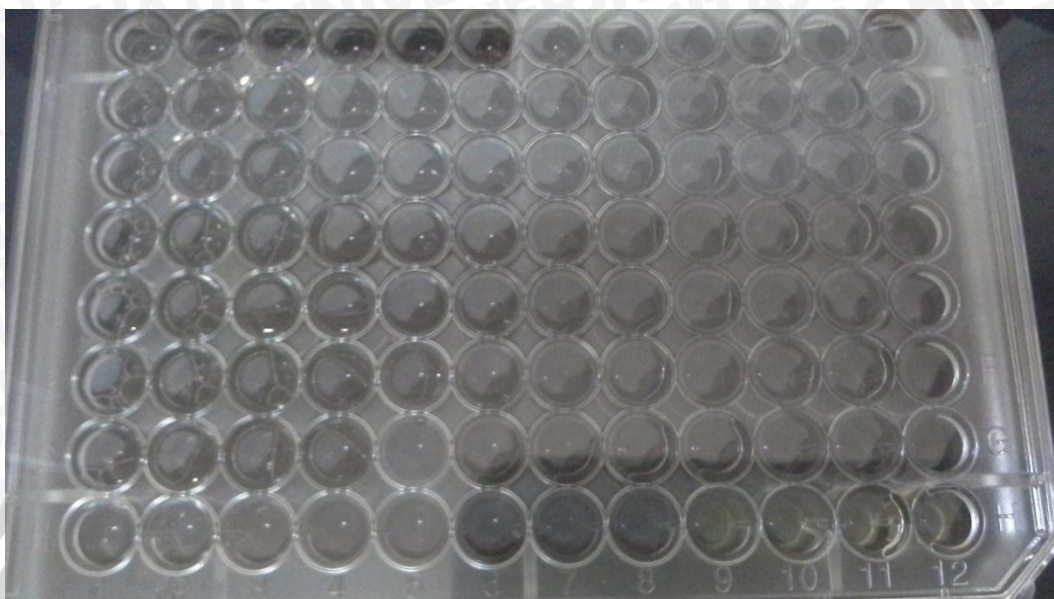
Menyatakan dengan sebenarnya bahwa Tugas Akhir yang saya buat ini adalah hasil karya tulis sendiri. Saya mengakui bahwa dalam pembuatannya mendapatkan ide dari beberapa penelitian sebelumnya oleh orang lain. Namun bukan merupakan hasil pengambilan semua gagasan. Jika dikemudian hari Tugas Akhir ini terbukti menjiplak, maka saya bersedia menerima sanksi atas perbuatan tersebut.

Malang , Juni 2013

Yang membuat pernyataan,

Riska Rosida  
105070501111011

Lampiran 2. Hasil Pewarnaan MTT Assay 1



Lampiran 3. Hasil Pembacaan Elisa Reader MTT 1

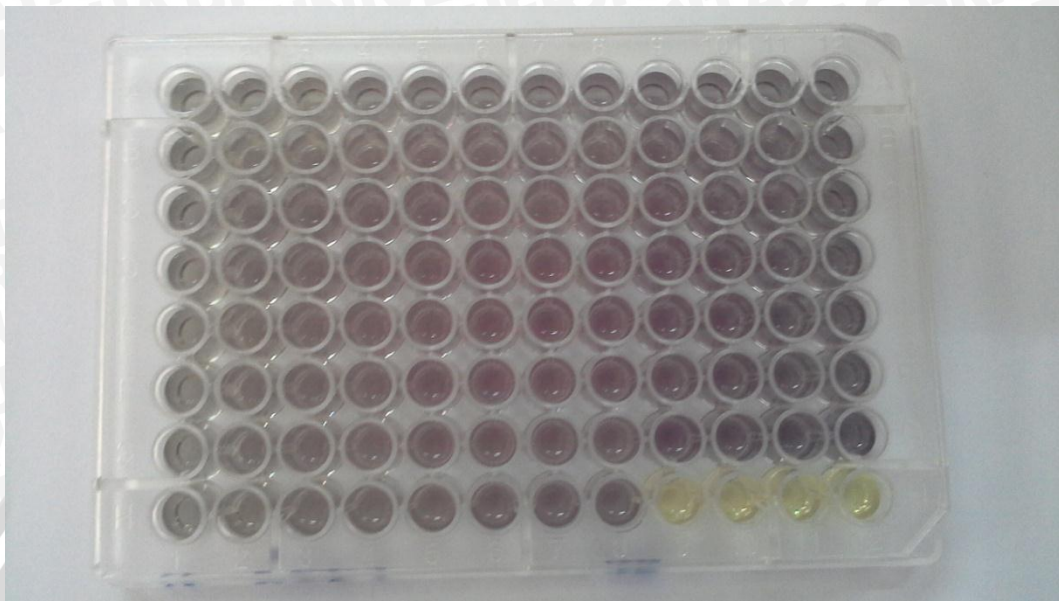
**Microplate Manager Bio-Rad Laboratories, Inc.  
Raw Data Report**

Reader Type : Model 680 XR      Plate File : Plate1  
Date : 26/03/2014 12:16

Measurement Wavelength: 550nm  
Incubator Temperature: 25.1 °C  
Reading Type: Endpoint (Fast Read)  
Mix Time: 0 sec

|   | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| A | 0.455 | 0.435 | 0.413 | 0.466 | 0.502 | 0.504 | 0.517 | 0.540 | 0.599 | 0.558 | 0.537 | 0.522 |
| B | 0.462 | 0.449 | 0.454 | 0.462 | 0.490 | 0.505 | 0.537 | 0.510 | 0.602 | 0.563 | 0.585 | 0.532 |
| C | 0.479 | 0.529 | 0.533 | 0.538 | 0.539 | 0.481 | 0.499 | 0.536 | 0.582 | 0.580 | 0.588 | 0.548 |
| D | 0.442 | 0.504 | 0.512 | 0.508 | 0.537 | 0.582 | 0.572 | 0.566 | 0.601 | 0.648 | 0.608 | 0.575 |
| E | 0.444 | 0.456 | 0.490 | 0.502 | 0.536 | 0.576 | 0.603 | 0.577 | 0.610 | 0.642 | 0.638 | 0.611 |
| F | 0.484 | 0.492 | 0.509 | 0.502 | 0.578 | 0.586 | 0.560 | 0.588 | 0.582 | 0.649 | 0.632 | 0.609 |
| G | 0.475 | 0.486 | 0.512 | 0.495 | 0.569 | 0.571 | 0.574 | 0.550 | 0.730 | 0.717 | 0.753 | 0.721 |
| H | 0.469 | 0.441 | 0.487 | 0.504 | 0.537 | 0.582 | 0.599 | 0.588 | 0.179 | 0.176 | 0.169 | 0.173 |

Lampiran 4. Hasil Pewarnaan MTT Assay 2



Lampiran 5. Hasil Pembacaan Elisa Reader MTT 1

Microplate Manager Bio-Rad Laboratories, Inc.  
Raw Data Report

Reader Type : Model 680 XR      Plate File : Plate1  
Date : 03/04/2014 9:45

Measurement Wavelength: 550nm  
Incubator Temperature: 27.8 °C  
Reading Type: Endpoint (Fast Read)  
Mix Time: 0 sec

|   | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12      |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| A | 0.209 | 0.204 | 0.200 | 0.185 | 0.182 | 0.179 | 0.282 | 0.294 | 0.306 | 0.397 | 0.390 | 0.416   |
| B | 0.178 | 0.174 | 0.170 | 0.171 | 0.164 | 0.158 | 0.311 | 0.318 | 0.330 | 0.369 | 0.360 | 0.375 ✓ |
| C | 0.216 | 0.223 | 0.201 | 0.170 | 0.166 | 0.167 | 0.276 | 0.296 | 0.297 | 0.412 | 0.401 | 0.379   |
| D | 0.372 | 0.379 | 0.372 | 0.160 | 0.156 | 0.152 | 0.310 | 0.292 | 0.314 | 0.375 | 0.472 | 0.343   |
| E | 0.521 | 0.535 | 0.536 | 0.173 | 0.155 | 0.155 | 0.311 | 0.304 | 0.302 | 0.543 | 0.574 | 0.513   |
| F | 0.202 | 0.190 | 0.173 | 0.189 | 0.167 | 0.158 | 0.287 | 0.312 | 0.317 | 0.562 | 0.563 | 0.568   |
| G | 0.200 | 0.196 | 0.182 | 0.200 | 0.198 | 0.162 | 0.365 | 0.327 | 0.323 | 0.936 | 0.850 | 0.781   |
| H | 0.204 | 0.203 | 0.200 | 0.232 | 0.247 | 0.247 | 0.412 | 0.392 | 0.399 | 0.119 | 0.113 | 0.123   |

Lampiran 6 Keterangan Kelaikan Etik



KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN  
THE MINISTRY OF EDUCATION AND CULTURE  
FAKULTAS KEDOKTERAN UNIVERSITAS BRAWIJAYA  
FACULTY OF MEDICINE UNIVERSITY OF BRAWIJAYA  
KOMISI ETIK PENELITIAN KESEHATAN  
HEALTH RESEARCH ETHICS COMMITTEE  
Jalan Veteran Malang – 65145  
Telp / Fax. (62) 341 - 553930

KETERANGAN KELAIKAN ETIK  
("ETHICAL CLEARANCE")

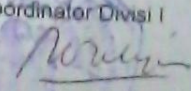
No. 279 / EC / KEPK - S1 - FARM / 04 / 2014

KOMISI ETIK PENELITIAN KESEHATAN FAKULTAS KEDOKTERAN UNIVERSITAS BRAWIJAYA, SETELAH MEMPELAJARI DENGAN SEKSAMA RANCANGAN PENELITIAN YANG DIUSULKAN, DENGAN INI MENYATAKAN BAHWA PENELITIAN DENGAN

- JUDUL : Efek Ekstrak Daun Kelor (*Moringa oleifera*) terhadap Ekspresi *Heat Shock Protein 70* (Hsp70) dan Apoptosis Sel Kanker Payudara MCF-7
- PENELITI UTAMA : Riska Rosida
- UNIT / LEMBAGA : S1 Farmasi - Fakultas Kedokteran - Universitas Brawijaya Malang
- TEMPAT PENELITIAN : Laboratorium Farmasi FKUB, Lab Biokimia FKUB, dan Laboratorium Pengujian dan Penelitian Terpadu UGM
- DINYATAKAN LAIK ETIK.

Malang, 22 APR 2014

An. Ketua,  
Koordinator Divisi I

  
Prof. Dr. dr. Teguh W Sardjono, DTM&H, MSc, SpPark  
NIP. 19520410 198002 1 001

Catatan :  
Keterangan Laik Etik ini Berlaku 1 (Satu) Tahun Sejak Tanggal Dikeluarkan Pada Akhir Penelitian. Laporan Pelaksanaan Penelitian Harus Diserahkan Kepada KEPK-FKUB Dalam Bentuk Soft Copy. Jika Ada Perubahan Protokol Dan / Atau Perpanjangan Penelitian, Harus Mengajukan Kembali Permohonan Kajian Etik Penelitian (Amandemen Protokol)



Lampiran 7. Hasil Perhitungan Indeks Ekspresi Hsp70 pada Sel MCF-7

| Perlakuan                                         | Lapang Pandang | Pengulangan 1 |            | Pengulangan 2 |            | Pengulangan 3 |            | Pengulangan 4 |           | Pengulangan 5 |            | Pengulangan 6 |           |
|---------------------------------------------------|----------------|---------------|------------|---------------|------------|---------------|------------|---------------|-----------|---------------|------------|---------------|-----------|
|                                                   |                | Ter-ekspresi  | Total Sel  | Ter-ekspresi  | Total Sel  | Ter-ekspresi  | Total Sel  | Ter-ekspresi  | Total Sel | Ter-ekspresi  | Total Sel  | Ter-ekspresi  | Total Sel |
| Kontrol Sel                                       | 1              | 21            | 21         | 3             | 3          | 11            | 13         | 6             | 6         | 3             | 3          | 3             | 3         |
|                                                   | 2              | 5             | 5          | 17            | 17         | 6             | 6          | 15            | 15        | 4             | 4          | 9             | 10        |
|                                                   | 3              | 4             | 4          | 3             | 3          | 19            | 21         | 16            | 16        | 13            | 15         | 7             | 7         |
|                                                   | 4              | 4             | 5          | 8             | 8          | 11            | 11         | 4             | 4         | 14            | 16         | 4             | 4         |
|                                                   | 5              | 8             | 8          | 16            | 20         | 5             | 5          | 4             | 4         | 11            | 11         | 15            | 15        |
|                                                   | 6              | 4             | 4          | 3             | 3          | 7             | 8          | 6             | 6         | 13            | 13         | 8             | 9         |
|                                                   | 7              | 24            | 24         | 19            | 23         | 9             | 9          | 15            | 20        | 14            | 16         | 9             | 9         |
|                                                   | 8              | 4             | 4          | 6             | 6          | 13            | 14         | 7             | 7         | 4             | 4          | 8             | 10        |
|                                                   | 9              | 25            | 34         | 17            | 17         | 10            | 10         | 9             | 9         | 13            | 13         | 5             | 7         |
|                                                   | 10             | 10            | 10         | 3             | 3          | 11            | 12         | 8             | 8         | 9             | 10         | 9             | 9         |
|                                                   | <b>Total</b>   | <b>109</b>    | <b>119</b> | <b>95</b>     | <b>103</b> | <b>102</b>    | <b>109</b> | <b>90</b>     | <b>95</b> | <b>98</b>     | <b>105</b> | <b>77</b>     | <b>83</b> |
| Indeks Ekspresi                                   | 91,60%         |               | 92%        |               | 93,58%     |               | 94,74%     |               | 93,33%    |               | 92,77%     |               |           |
| <b>93,04%</b>                                     |                |               |            |               |            |               |            |               |           |               |            |               |           |
| $\frac{1}{2}$ IC <sub>50</sub> =<br>1100<br>µg/ml | 1              | 3             | 7          | 9             | 15         | 8             | 13         | 6             | 7         | 11            | 13         | 18            | 23        |
|                                                   | 2              | 4             | 10         | 8             | 14         | 12            | 20         | 9             | 9         | 5             | 10         | 22            | 27        |
|                                                   | 3              | 20            | 25         | 14            | 19         | 12            | 19         | 16            | 19        | 10            | 19         | 23            | 33        |
|                                                   | 4              | 11            | 26         | 15            | 20         | 21            | 26         | 4             | 4         | 7             | 13         | 7             | 10        |
|                                                   | 5              | 10            | 14         | 9             | 16         | 37            | 41         | 10            | 18        | 24            | 33         | 37            | 42        |

|                                     |                                                 |                 |            |            |            |            |            |            |            |            |            |            |            |            |
|-------------------------------------|-------------------------------------------------|-----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
|                                     | 6                                               | 15              | 24         | 10         | 18         | 23         | 34         | 18         | 44         | 22         | 26         | 14         | 20         |            |
|                                     | 7                                               | 14              | 24         | 7          | 9          | 32         | 39         | 11         | 13         | 9          | 13         | 39         | 42         |            |
|                                     | 8                                               | 13              | 13         | 21         | 21         | 12         | 37         | 15         | 17         | 8          | 30         | 23         | 23         |            |
|                                     | 9                                               | 22              | 27         | 14         | 21         | 18         | 22         | 21         | 24         | 8          | 11         | 14         | 14         |            |
|                                     | 10                                              | 5               | 10         | 9          | 9          | 11         | 11         | 9          | 9          | 21         | 26         | 23         | 25         |            |
|                                     | <b>Total</b>                                    | <b>113</b>      | <b>180</b> | <b>116</b> | <b>162</b> | <b>186</b> | <b>262</b> | <b>119</b> | <b>164</b> | <b>125</b> | <b>194</b> | <b>220</b> | <b>259</b> |            |
|                                     | Indeks Ekspresi                                 | 62,78%          |            | 71,60%     |            | 70,99%     |            | 72,56%     |            | 64,43%     |            | 84,94%     |            |            |
|                                     | <b>Indeks Ekspresi rata-rata sebesar 71,22%</b> |                 |            |            |            |            |            |            |            |            |            |            |            |            |
| IC <sub>50</sub> =<br>2200<br>µg/mL | 1                                               | 6               | 9          | 8          | 19         | 5          | 12         | 7          | 16         | 15         | 36         | 19         | 41         |            |
|                                     | 2                                               | 12              | 29         | 31         | 42         | 14         | 44         | 6          | 5          | 10         | 16         | 8          | 40         |            |
|                                     | 3                                               | 16              | 37         | 11         | 26         | 4          | 10         | 12         | 46         | 3          | 4          | 11         | 26         |            |
|                                     | 4                                               | 9               | 26         | 9          | 20         | 6          | 14         | 7          | 10         | 11         | 15         | 4          | 11         |            |
|                                     | 5                                               | 17              | 30         | 8          | 25         | 8          | 19         | 5          | 26         | 11         | 50         | 19         | 29         |            |
|                                     | 6                                               | 7               | 10         | 13         | 39         | 9          | 13         | 12         | 32         | 4          | 9          | 14         | 42         |            |
|                                     | 7                                               | 9               | 34         | 13         | 49         | 6          | 16         | 10         | 18         | 19         | 41         | 15         | 40         |            |
|                                     | 8                                               | 11              | 41         | 11         | 30         | 16         | 48         | 10         | 36         | 9          | 23         | 8          | 30         |            |
|                                     | 9                                               | 13              | 42         | 16         | 48         | 10         | 29         | 12         | 37         | 14         | 43         | 9          | 20         |            |
|                                     | 10                                              | 4               | 8          | 7          | 24         | 7          | 17         | 14         | 33         | 12         | 44         | 10         | 26         |            |
|                                     |                                                 | <b>Total</b>    | <b>104</b> | <b>266</b> | <b>127</b> | <b>322</b> | <b>85</b>  | <b>222</b> | <b>95</b>  | <b>259</b> | <b>108</b> | <b>281</b> | <b>117</b> | <b>305</b> |
|                                     |                                                 | Indeks Ekspresi | 39,10%     |            | 39,44%     |            | 38,29%     |            | 36,68%     |            | 38,43%     |            | 38,36%     |            |
|                                     | <b>38,38%</b>                                   |                 |            |            |            |            |            |            |            |            |            |            |            |            |
|                                     | 1                                               | 8               | 26         | 17         | 31         | 9          | 12         | 14         | 21         | 17         | 24         | 14         | 21         |            |

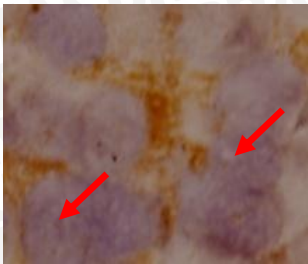
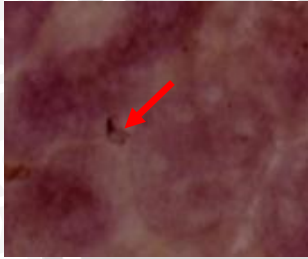
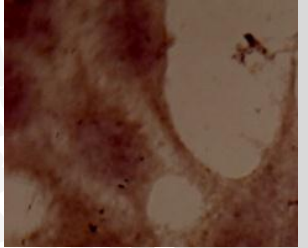
2IC<sub>50</sub>=  
4400  
μg/mL

|                 |           |            |           |            |            |            |            |            |            |            |            |            |
|-----------------|-----------|------------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 2               | 6         | 11         | 6         | 6          | 10         | 16         | 8          | 10         | 12         | 24         | 24         | 29         |
| 3               | 13        | 19         | 3         | 7          | 11         | 16         | 3          | 5          | 7          | 15         | 16         | 19         |
| 4               | 11        | 31         | 8         | 15         | 10         | 25         | 10         | 17         | 15         | 26         | 11         | 18         |
| 5               | 6         | 11         | 9         | 19         | 24         | 30         | 10         | 18         | 11         | 14         | 13         | 21         |
| 6               | 8         | 14         | 12        | 15         | 5          | 13         | 12         | 15         | 11         | 16         | 16         | 18         |
| 7               | 5         | 19         | 19        | 25         | 8          | 11         | 13         | 13         | 12         | 22         | 8          | 12         |
| 8               | 19        | 19         | 6         | 12         | 10         | 17         | 15         | 18         | 33         | 40         | 8          | 15         |
| 9               | 12        | 21         | 14        | 20         | 9          | 16         | 17         | 27         | 13         | 28         | 13         | 15         |
| 10              | 8         | 11         | 5         | 5          | 10         | 13         | 12         | 18         | 15         | 22         | 7          | 9          |
| <b>Total</b>    | <b>96</b> | <b>182</b> | <b>99</b> | <b>155</b> | <b>106</b> | <b>169</b> | <b>114</b> | <b>162</b> | <b>146</b> | <b>231</b> | <b>130</b> | <b>177</b> |
| Indeks Ekspresi | 52,75%    |            | 63,87%    |            | 62,72%     |            | 70,37%     |            | 63,20%     |            | 73,45%     |            |

**Indeks Ekspresi rata- rata sebesar 64,39%**

Lampiran 8. Interpretasi Hasil Imunohistokimia Hsp70

INTERPRETASI HASIL IMUNOHISTOKIMIA Hsp70

| Gambar                                                                              | Kriteria                                                                                                         | Kategori |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------|
|    | Panah merah menunjukkan ekspresi Hsp70 di sitoplasma namun sangat sedikit (Tidak ada ekspresi Hsp70 di inti sel) | 1        |
|   | Panah merah menunjukkan adanya ekspresi Hsp70 di sitoplasma dan inti sel banyak                                  | 2        |
|  | Panah merah menunjukkan adanya ekspresi Hsp70 di sitoplasma dan inti sel banyak dan merata                       | 3        |

Perhitungan Indeks Ekspresi HSP70:

- Terdapat 10 lapang pandang pada setiap perlakuan
- Indeks Ekspresi Hsp70 =  $\frac{\text{(jumlah sel kategori 1 + 2 + 3 + 3 pada semua lapang pandang)}}{\text{Jumlah total sel}}$

Jumlah total sel





Lampiran 9. Uji Normalitas Indeks Ekspresi Hsp70

| Tests of Normality |                                 |      |      |                   |      |      |      |
|--------------------|---------------------------------|------|------|-------------------|------|------|------|
| dosis              | Kolmogorov-Smirnov <sup>a</sup> |      |      | Shapiro-Wilk      |      |      |      |
|                    | Statistic                       | df   | Sig. | Statistic         | df   | Sig. |      |
| indeks_ekspresi    | kontrol                         | ,226 | 6    | ,200 <sup>*</sup> | ,879 | 6    | ,267 |
|                    | 1100                            | ,304 | 6    | ,087              | ,871 | 6    | ,232 |
|                    | 2200                            | ,221 | 6    | ,200 <sup>*</sup> | ,877 | 6    | ,257 |
|                    | 4400                            | ,239 | 6    | ,200 <sup>*</sup> | ,930 | 6    | ,581 |

\*. This is a lower bound of the true significance.  
a. Lilliefors Significance Correction

Lampiran 10. Uji Homogenitas Indeks Ekspresi Hsp70

| Test of Homogeneity of Variances |                  |     |     |      |
|----------------------------------|------------------|-----|-----|------|
| indeks_ekspresi                  | Levene Statistic | df1 | df2 | Sig. |
|                                  | 2,964            | 3   | 20  | ,057 |

Lampiran 11. Uji ANOVA dan Post Hoc Test Indeks Ekspresi Hsp70

| Multiple Comparisons                |           |                        |            |      |                         |             |
|-------------------------------------|-----------|------------------------|------------|------|-------------------------|-------------|
| Dependent Variable: indeks_ekspresi |           |                        |            |      |                         |             |
| (I) dosis                           | (J) dosis | Mean Difference (I-J)  | Std. Error | Sig. | 95% Confidence Interval |             |
|                                     |           |                        |            |      | Lower Bound             | Upper Bound |
| kontrol                             | 1100      | 21,78167 <sup>*</sup>  | 3,11127    | ,000 | 13,0734                 | 30,4899     |
|                                     | 2200      | 54,61500 <sup>*</sup>  | 3,11127    | ,000 | 45,9068                 | 63,3232     |
|                                     | 4400      | 28,54500 <sup>*</sup>  | 3,11127    | ,000 | 19,8368                 | 37,2532     |
| 1100                                | kontrol   | -21,78167 <sup>*</sup> | 3,11127    | ,000 | -30,4899                | -13,0734    |
|                                     | 2200      | 32,83333 <sup>*</sup>  | 3,11127    | ,000 | 24,1251                 | 41,5416     |
|                                     | 4400      | 6,76333                | 3,11127    | ,165 | -1,9449                 | 15,4716     |
| 2200                                | kontrol   | -54,61500 <sup>*</sup> | 3,11127    | ,000 | -63,3232                | -45,9068    |
|                                     | 1100      | -32,83333 <sup>*</sup> | 3,11127    | ,000 | -41,5416                | -24,1251    |
|                                     | 4400      | -26,07000 <sup>*</sup> | 3,11127    | ,000 | -34,7782                | -17,3618    |
| 4400                                | kontrol   | -28,54500 <sup>*</sup> | 3,11127    | ,000 | -37,2532                | -19,8368    |
|                                     | 1100      | -6,76333               | 3,11127    | ,165 | -15,4716                | 1,9449      |
|                                     | 2200      | 26,07000 <sup>*</sup>  | 3,11127    | ,000 | 17,3618                 | 34,7782     |
| kontrol                             | 1100      | 21,78167 <sup>*</sup>  | 3,11127    | ,000 | 15,2917                 | 28,2717     |
|                                     | 2200      | 54,61500 <sup>*</sup>  | 3,11127    | ,000 | 48,1250                 | 61,1050     |
|                                     | 4400      | 28,54500 <sup>*</sup>  | 3,11127    | ,000 | 22,0550                 | 35,0350     |
| 1100                                | kontrol   | -21,78167 <sup>*</sup> | 3,11127    | ,000 | -28,2717                | -15,2917    |
|                                     | 2200      | 32,83333 <sup>*</sup>  | 3,11127    | ,000 | 26,3433                 | 39,3233     |
|                                     | 4400      | 6,76333 <sup>*</sup>   | 3,11127    | ,042 | ,2733                   | 13,2533     |

|      |        |                        |         |      |          |          |
|------|--------|------------------------|---------|------|----------|----------|
| 2200 | kontro | -54,61500 <sup>*</sup> | 3,11127 | ,000 | -61,1050 | -48,1250 |
|      | 1100   | -32,83333 <sup>*</sup> | 3,11127 | ,000 | -39,3233 | -26,3433 |
|      | 2200   |                        |         |      |          |          |
|      | 4400   | -26,07000 <sup>*</sup> | 3,11127 | ,000 | -32,5600 | -19,5800 |
| 4400 | kontro | -28,54500 <sup>*</sup> | 3,11127 | ,000 | -35,0350 | -22,0550 |
|      | 1100   | -6,76333 <sup>*</sup>  | 3,11127 | ,042 | -13,2533 | -,2733   |
|      | 2200   | 26,07000 <sup>*</sup>  | 3,11127 | ,000 | 19,5800  | 32,5600  |
|      | 4400   |                        |         |      |          |          |

\* mean difference is significant at the 0.05 level.

### Lampiran 12. Uji Korelasi Indeks Ekspresi Hsp70

| Correlations    |                     |                     |                     |
|-----------------|---------------------|---------------------|---------------------|
|                 |                     | dosis               | indeks_ekspresi     |
| dosis           | Pearson Correlation | 1                   | -,659 <sup>**</sup> |
|                 | Sig. (2-tailed)     |                     | ,000                |
|                 | N                   | 24                  | 24                  |
| indeks_ekspresi | Pearson Correlation | -,659 <sup>**</sup> | 1                   |
|                 | Sig. (2-tailed)     | ,000                |                     |
|                 | N                   | 24                  | 24                  |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

