

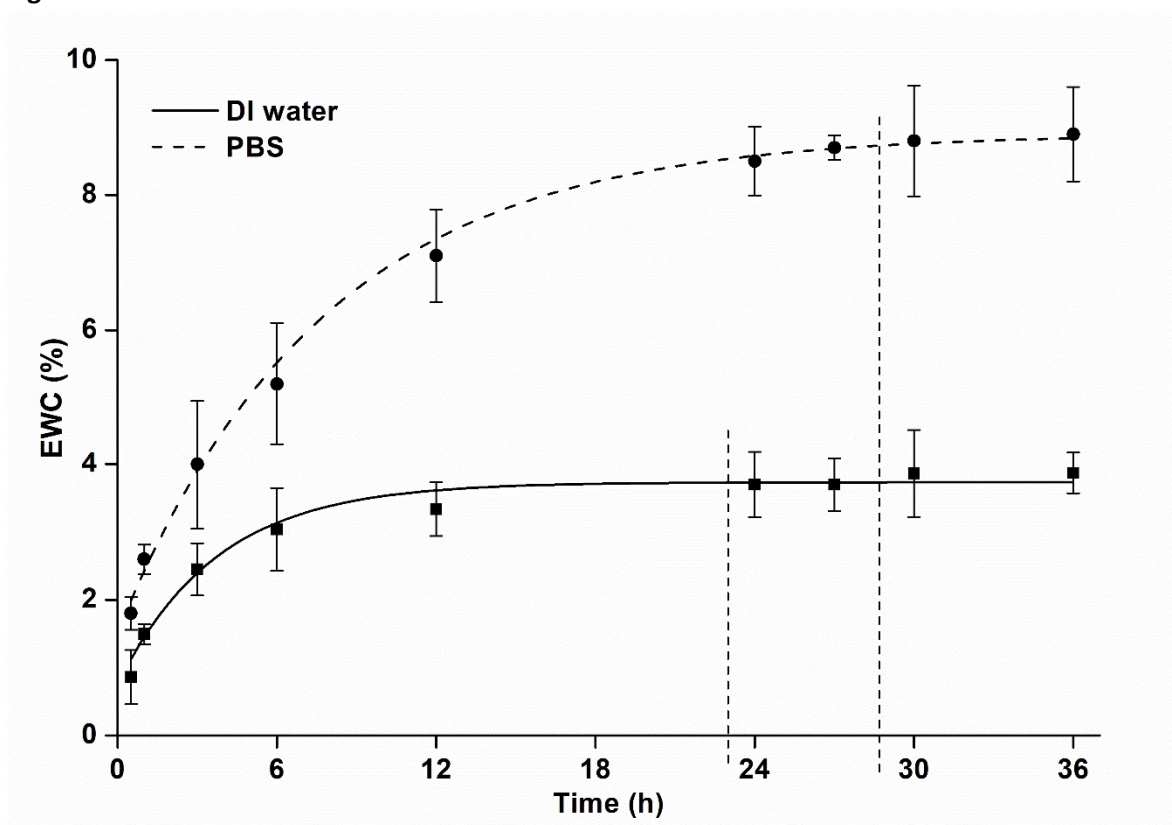
**Supplementary material for:**

**Simultaneous grafting polymerization of acrylic acid and silver aggregates formation by direct reduction using g radiation onto silicone surface and their antimicrobial activity and biocompatibility**

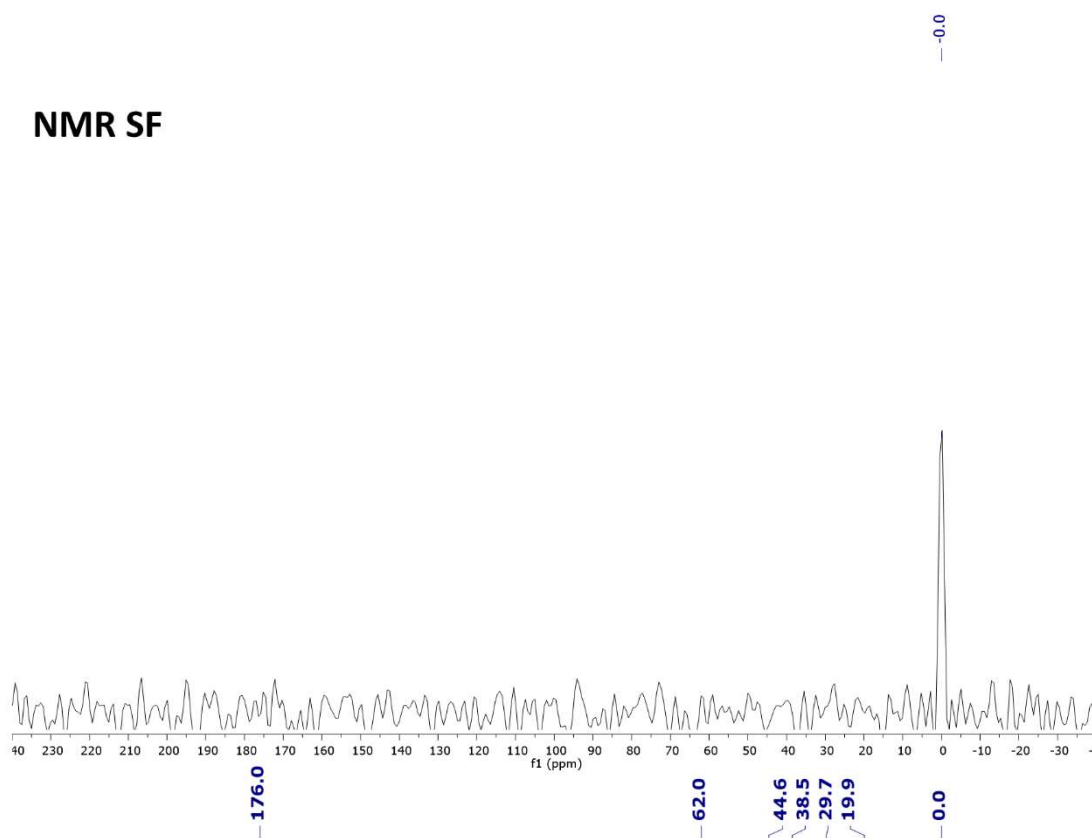
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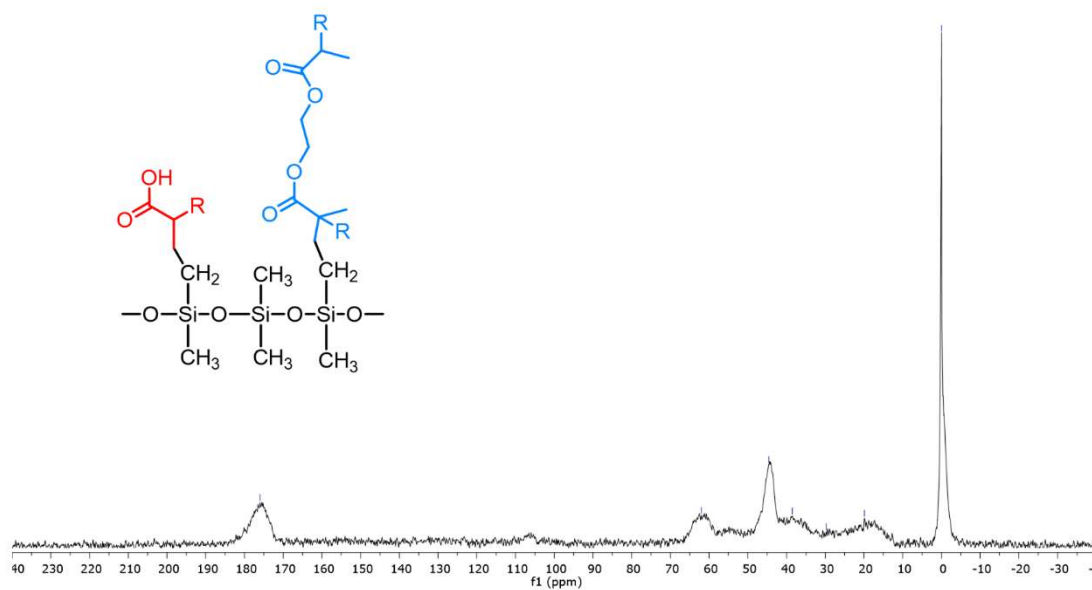
**Figure S1:** EWC% for the films in DI water and PBS



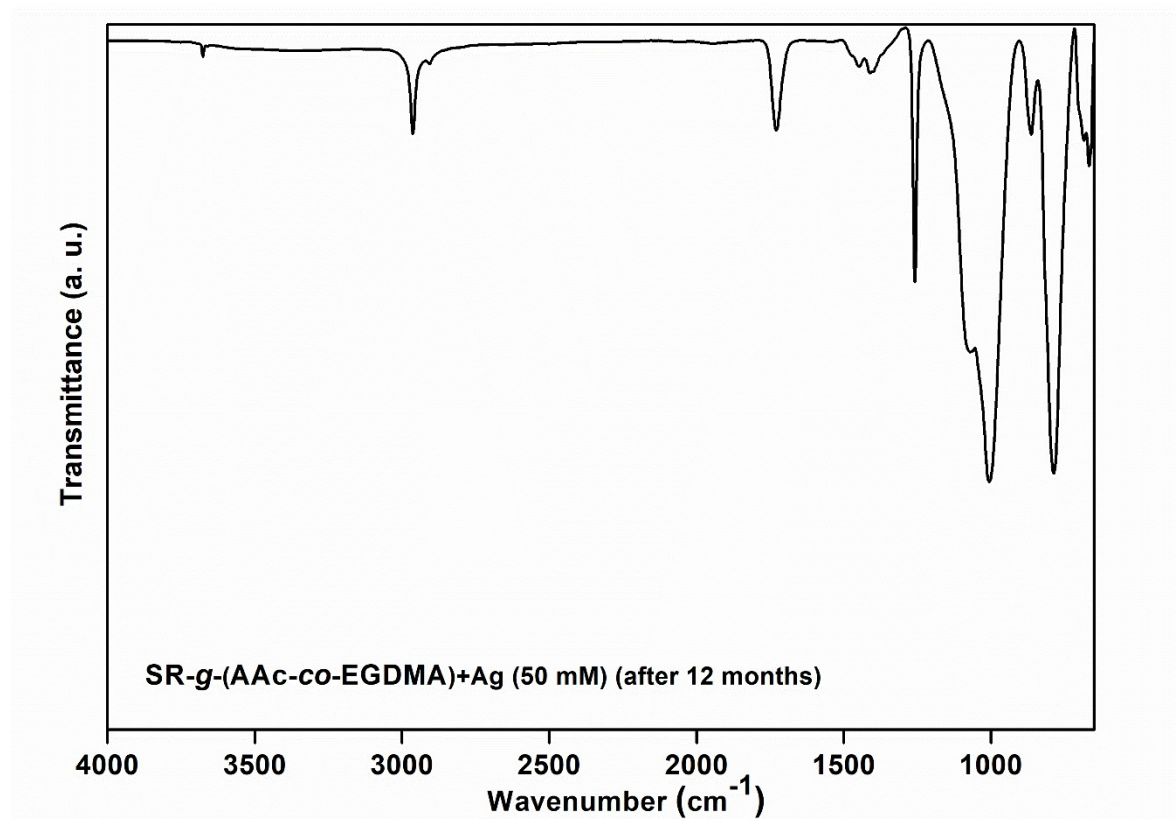
**Figure S2:**  $^{13}\text{C}$  CPMAS SS NMR spectra of the different films.



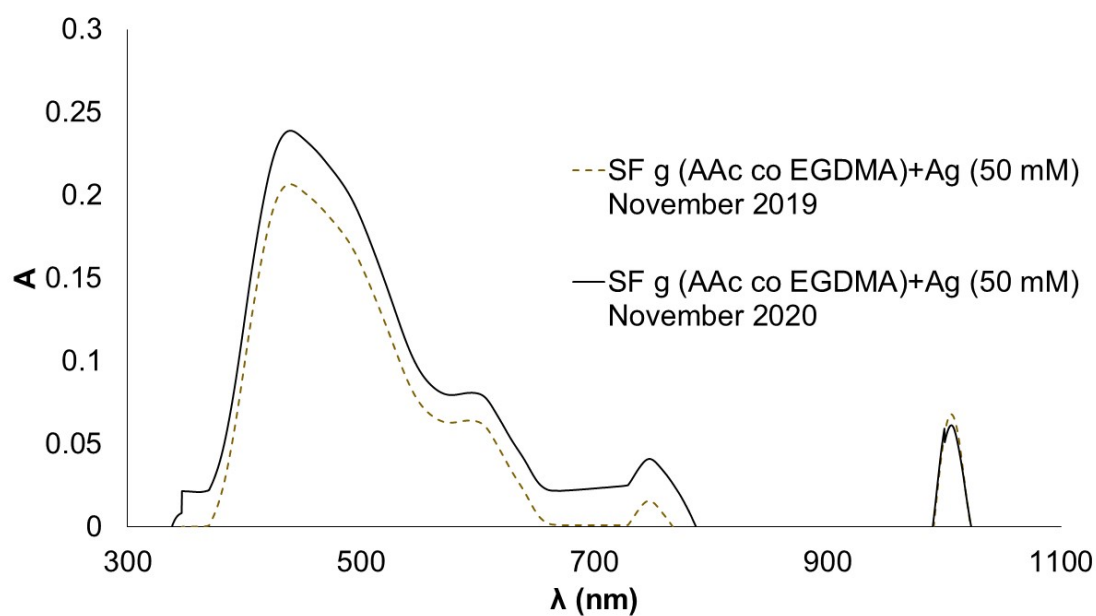
**NMR: SF-*g*-(AAc-*co*-EGDMA)**



**Figure S3:** FTIR-ATR spectrum of the SF-*g*-(AAc-*co*-EGDMA)+Ag (50 mM) recorded after twelve months



**Figure S4:** UV-Vis spectrum of the SF-*g*-(AAc-*co*-EGDMA)+Ag (50 mM) recorded after twelve months



## One-Way ANOVA difference of means hypothesis test with post-hoc test (Tukey)

*S. aureus* growth inhibition

$H_0: \% \text{Growth}_{\text{SF}} = \% \text{Growth}_{\text{SF-g-(AAC-co-EDGMA)}} = \% \text{Growth}_{\text{SF-g-(AAC-co-EDGMA)+Ag}}$

$H_a: \% \text{Growth}_{\text{SF}} \neq \% \text{Growth}_{\text{SF-g-(AAC-co-EDGMA)}} \neq \% \text{Growth}_{\text{SF-g-(AAC-co-EDGMA)+Ag}}$

| ANOVA  |                       |                     |                                 |          |                         |
|--|-----------------------|---------------------|---------------------------------|----------|-------------------------|
| Sample   | SF                    | SF-g-(AAC-co-EDGMA) | SF-g-(AAC-co-EDGMA)+Ag          |          |                         |
| Repetition 1   | 92.9                  | 89.6                | 34.9                            |          |                         |
| Repetition 2   | 88.8                  | 82.1                | 39.2                            |          |                         |
| Repetition 3   | 94.8                  | 85.7                | 45.4                            |          |                         |
| Mean   | 92.166                | 85.800              | 39.833                          |          |                         |
| St. Deviation  | 3.066                 | 3.651               | 5.278                           |          |                         |
| Source   | Sum of squares        | Degrees of Freedom  | Mean Square                     | F-value  | p-value                 |
| Sample   | 4892.2467             | 2                   | 2446.1233                       | 142.9460 | $8.6854 \times 10^{-6}$ |
| Error  | 102.6733              | 6                   | 17.1122                         |          |                         |
| Total  | 4994.9200             | 8                   |                                 |          |                         |
| Null hypothesis is rejected ( $p < 0.01$ ). Therefore, there is a significant difference between the three samples |                       |                     |                                 |          |                         |
| Post-Hoc   |                       |                     |                                 |          |                         |
| Sample pair  | Tukey HSD Q statistic | Tukey HSD p-value   | Tukey HSD interference          |          |                         |
| SF and SF-g-(AAC-co-EDGMA)   | 2.6658                | 0.22255             | Insignificant ( $p \geq 0.05$ ) |          |                         |
| SF and SF-g-(AAC-co-EDGMA) + Ag  | 21.9122               | 0.0010053           | Significant ( $p < 0.01$ )      |          |                         |
| SF-g-(AAC-co-EDGMA) and SF-g-(AAC-co-EDGMA)+ Ag  | 19.2464               | 0.0010053           | Significant ( $p < 0.01$ )      |          |                         |

***E. coli* growth inhibition**

$H_0: \% \text{Growth}_{\text{SF}} = \% \text{Growth}_{\text{SF-g-(AAC-co-EDGMA)}} = \% \text{Growth}_{\text{SF-g-(AAC-co-EDGMA)+Ag}}$

$H_a: \% \text{Growth}_{\text{SF}} \neq \% \text{Growth}_{\text{SF-g-(AAC-co-EDGMA)}} \neq \% \text{Growth}_{\text{SF-g-(AAC-co-EDGMA)+Ag}}$

| ANOVA   |                |                       |                     |                        |                         |
|---|----------------|-----------------------|---------------------|------------------------|-------------------------|
| Sample  |                | SF                    | SF-g-(AAc-co-EDGMA) | SF-g-(AAc-co-EDGMA)+Ag |                         |
| Repetition 1  |                | 97.1                  | 75.6                | 53.4                   |                         |
| Repetition 2  |                | 99.7                  | 82.1                | 56.9                   |                         |
| Repetition 3  |                | 98.7                  | 80.9                | 61.5                   |                         |
| Mean  |                | 98.500                | 79.533              | 57.2667                |                         |
| St. Deviation   |                | 1.312                 | 3.459               | 4.062                  |                         |
|   |                |                       |                     |                        |                         |
| Source  | Sum of squares | Degrees of Freedom    | Mean Square         | F-value                | p-value                 |
| Sample  | 2555.7267      | 2                     | 1277.8633           | 126.9961               | 1.2291x10 <sup>-5</sup> |
| Error   | 60.3733        | 6                     | 10.0622             |                        |                         |
| Total   | 2616.1000      | 8                     |                     |                        |                         |
| Null hypothesis is <b>rejected (p&lt;0.01)</b> . Therefore, there is a significant difference between the three samples |                |                       |                     |                        |                         |
| Post-Hoc  |                |                       |                     |                        |                         |
| Sample pair   |                | Tukey HSD Q statistic | Tukey HSD p-value   | Tukey HSD interference |                         |
| SF and SF-g-(AAc-co-EDGMA)  |                | 10.3563               | 0.0010053           | Significant (p<0.01)   |                         |
| SF and SF-g-(AAc-co-EDGMA) + Ag   |                | 22.5145               | 0.0010053           | Significant (p<0.01)   |                         |
| SF-g-(AAc-co-EDGMA) and SF-g-(AAc-co-EDGMA)+ Ag   |                | 12.1582               | 0.0010053           | Significant (p<0.01)   |                         |

***P. aeruginosa* growth inhibition**

$H_0: \% \text{Growth}_{\text{SF}} = \% \text{Growth}_{\text{SF-g-(AAC-co-EDGMA)}} = \% \text{Growth}_{\text{SF-g-(AAC-co-EDGMA)+Ag}}$

$H_a: \% \text{Growth}_{\text{SF}} \neq \% \text{Growth}_{\text{SF-g-(AAC-co-EDGMA)}} \neq \% \text{Growth}_{\text{SF-g-(AAC-co-EDGMA)+Ag}}$

| ANOVA  |                       |                    |                     |         |                                 |
|--|-----------------------|--------------------|---------------------|---------|---------------------------------|
| Sample   | SF                    |                    | SF-g-(AAC-co-EDGMA) |         | SF-g-(AAC-co-EDGMA)+Ag          |
| Repetition 1   | 92.6                  |                    | 79.6                |         | 73.5                            |
| Repetition 2   | 83.1                  |                    | 82.8                |         | 66.9                            |
| Repetition 3   | 85.7                  |                    | 84.9                |         | 68.5                            |
| Mean   | 87.133                |                    | 82.433              |         | 69.633                          |
| St. Deviation  | 4.909                 |                    | 2.668               |         | 3.442                           |
| Source   | Sum of squares        | Degrees of Freedom | Mean Square         | F-value | p-value                         |
| Sample   | 492.1800              | 2                  | 246.0900            | 17.1372 | 0.0033                          |
| Error  | 86.1600               | 6                  | 14.3600             |         |                                 |
| Total  | 578.3400              | 8                  |                     |         |                                 |
| Null hypothesis is <b>rejected (<math>p &lt; 0.01</math>)</b> . Therefore, there is a significant difference between the three samples |                       |                    |                     |         |                                 |
| Post-Hoc   |                       |                    |                     |         |                                 |
| Sample pair  | Tukey HSD Q statistic |                    | Tukey HSD p-value   |         | Tukey HSD interference          |
| SF and SF-g-(AAC-co-EDGMA)   | 2.1482                |                    | 0.3476896           |         | Insignificant ( $p \geq 0.05$ ) |
| SF and SF-g-(AAC-co-EDGMA) + Ag  | 7.9987                |                    | 0.0031531           |         | Significant ( $p < 0.01$ )      |
| SF-g-(AAC-co-EDGMA) and SF-g-(AAC-co-EDGMA)+ Ag  | 5.8505                |                    | 0.0143312           |         | Significant ( $p < 0.05$ )      |

### Cytocompatibility

$H_0$ : % Cell viability<sub>SF</sub> = % Cell viability<sub>SF-g-(AAC-co-EDGMA)</sub> = % Cell viability<sub>SF-g-(AAC-co-EDGMA)+Ag (10 mM)</sub> = % Cell viability<sub>SF-g-(AAC-co-EDGMA)+Ag (20 mM)</sub> = % Cell viability<sub>SF-g-(AAC-co-EDGMA)+Ag (50 mM)</sub>

$H_a$ : % Cell viability<sub>SF</sub>  $\neq$  % Cell viability<sub>SF-g-(AAC-co-EDGMA)</sub>  $\neq$  % Cell viability<sub>SF-g-(AAC-co-EDGMA)+Ag (10 mM)</sub>  $\neq$  % Cell viability<sub>SF-g-(AAC-co-EDGMA)+Ag (20 mM)</sub>  $\neq$  % Cell viability<sub>SF-g-(AAC-co-EDGMA)+Ag (50 mM)</sub>

| ANOVA   |                |                       |                         |                                    |                                    |                                    |
|---|----------------|-----------------------|-------------------------|------------------------------------|------------------------------------|------------------------------------|
| Sample  | Blank (A)      | SF (B)                | SF-g-(AAc-co-EDGMA) (C) | SF-g-(AAc-co-EDGMA)+Ag (10 mM) (D) | SF-g-(AAc-co-EDGMA)+Ag (20 mM) (E) | SF-g-(AAc-co-EDGMA)+Ag (50 mM) (F) |
| Repetition 1  | 0.482          | 0.458                 | 0.406                   | 0.447                              | 0.395                              | 0.136                              |
| Repetition 2  | 0.491          | 0.479                 | 0.323                   | 0.435                              | 0.409                              | 0.107                              |
| Repetition 3  | 0.468          | 0.478                 | 0.324                   | 0.474                              | 0.267                              | 0.149                              |
| Mean  | 0.4803         | 0.4717                | 0.3510                  | 0.4520                             | 0.3570                             | 0.1307                             |
| St. Deviation   | 0.0116         | 0.0118                | 0.0476                  | 0.0200                             | 0.0783                             | 0.0215                             |
|   |                |                       |                         |                                    |                                    |                                    |
| Source  | Sum of squares | Degrees of Freedom    | Mean Square             | F-value                            | p-value                            |                                    |
| reatment  | 0.2609         | 5                     | 0.0522                  | 32.8524                            | 1.3342x10 <sup>-6</sup>            |                                    |
| error   | 0.0191         | 12                    | 0.0016                  |                                    |                                    |                                    |
| total   | 0.2799         | 17                    |                         |                                    |                                    |                                    |
| Null hypothesis is <b>rejected (p&lt;0.01)</b> . Therefore, there is a significant difference between the three samples |                |                       |                         |                                    |                                    |                                    |
| Post-Hoc  |                |                       |                         |                                    |                                    |                                    |
| Sample pair   |                | Tukey HSD Q statistic | Tukey HSD p-value       |                                    | Tukey HSD interference             |                                    |
| A vs B  |                | 0.3767                | 0.899995                |                                    | Insignificant (p≥0.05)             |                                    |
| A vs C  |                | 5.6211                | 0.017711                |                                    | Significant (p<0.05)               |                                    |
| A vs D  |                | 1.2314                | 0.899995                |                                    | Insignificant (p≥0.05)             |                                    |
| A vs E  |                | 5.3603                | 0.0242                  |                                    | Significant (p<0.05)               |                                    |
| A vs F  |                | 15.1973               | 0.0010                  |                                    | Significant (p<0.01)               |                                    |
| B vs C  |                | 5.2444                | 0.027777                |                                    | Significant (p<0.05)               |                                    |
| B vs D  |                | 0.8548                | 0.899995                |                                    | Insignificant (p≥0.05)             |                                    |
| B vs E  |                | 4.9837                | 0.037922                |                                    | Significant (p<0.05)               |                                    |
| B vs F  |                | 14.8206               | 0.001005                |                                    | Significant (p<0.01)               |                                    |
| C vs D  |                | 4.3897                | 0.076532                |                                    | Insignificant (p≥0.05)             |                                    |
| C vs E  |                | 0.2608                | 0.899995                |                                    | Insignificant (p≥0.05)             |                                    |
| C vs F  |                | 9.5762                | 0.001005                |                                    | Significant (p<0.01)               |                                    |
| D vs E  |                | 4.1289                | 0.103262                |                                    | Insignificant (p≥0.05)             |                                    |