

Surface-enhanced Raman spectroscopy for the characterization of bacterial pellets of *Staphylococcus Aureus* infected by bacteriophage

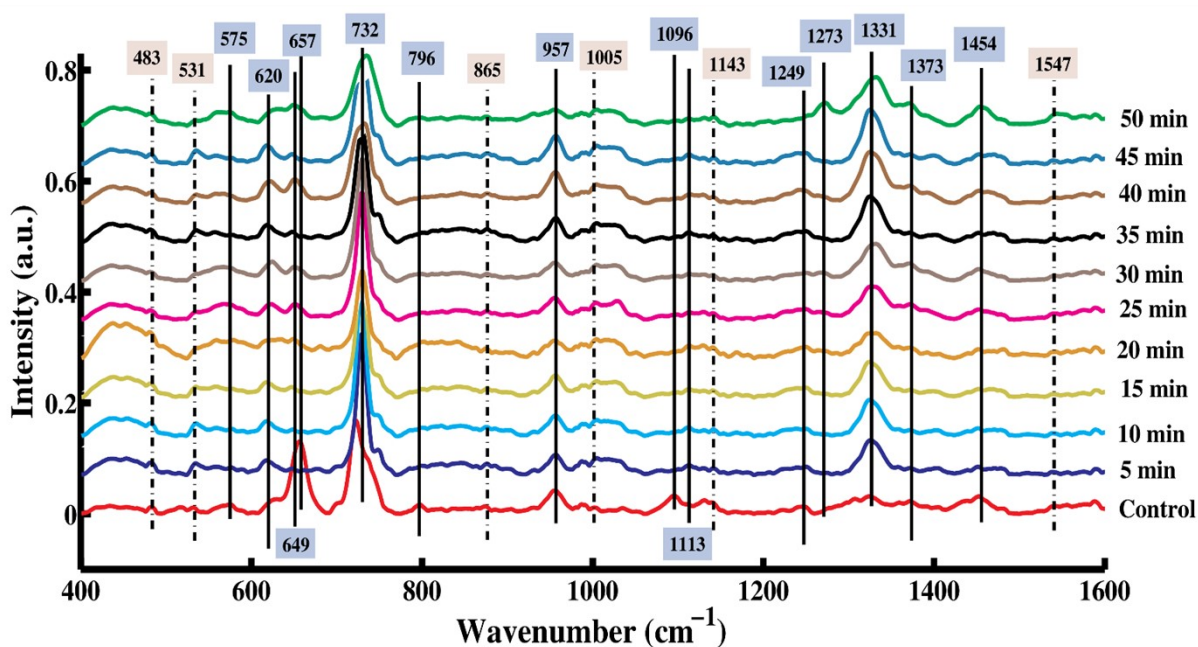


Fig. S1 Mean SERS spectra of control and phage exposed *S. aureus* bacterial samples including 5-50 minutes of exposure with the interval of 5 minutes each.

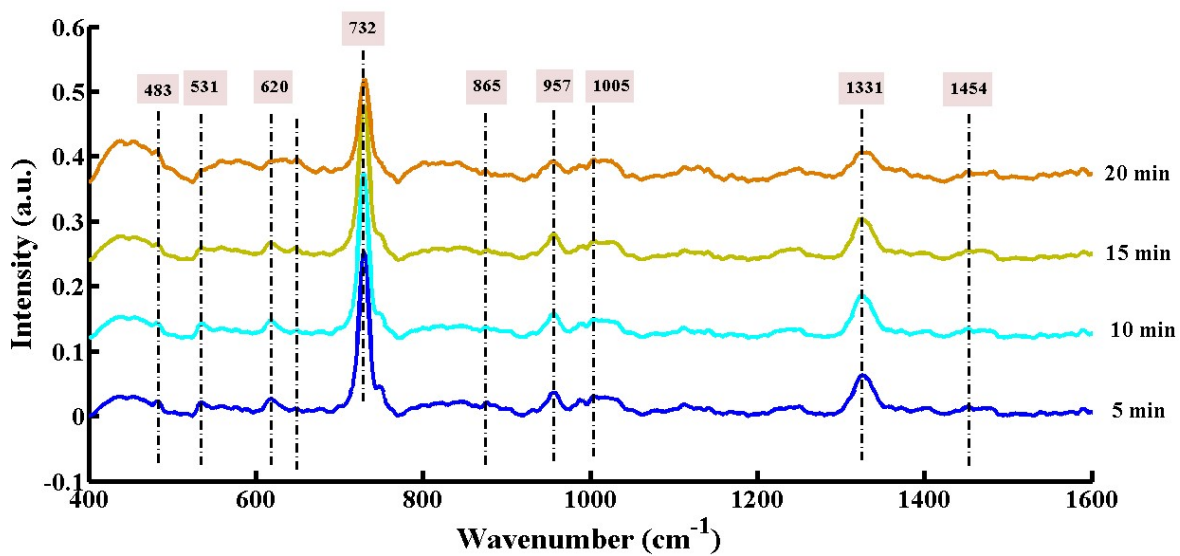


Fig. S2 Mean SERS spectra of 5, 10, 15 and 20 minutes of phage exposed *S. aureus* bacterial samples.

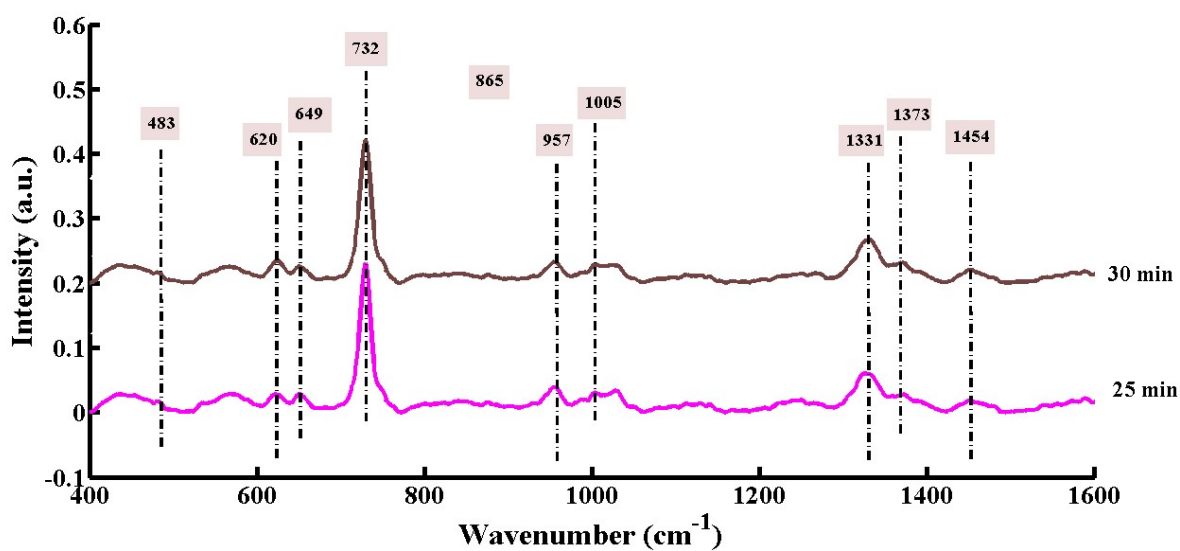


Fig. S3 Mean SERS spectra of 25 and 30 minutes of phage exposed *S. aureus* bacterial samples.

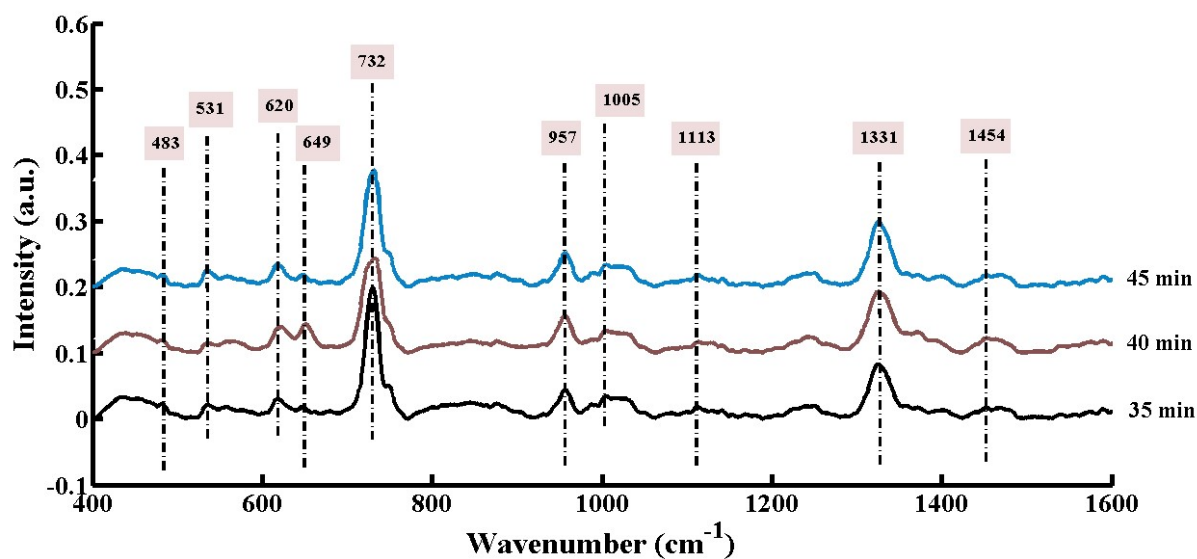


Fig. S4 Mean SERS spectra of 35, 40 and 45 minutes of phage exposed *S. aureus* bacterial samples.

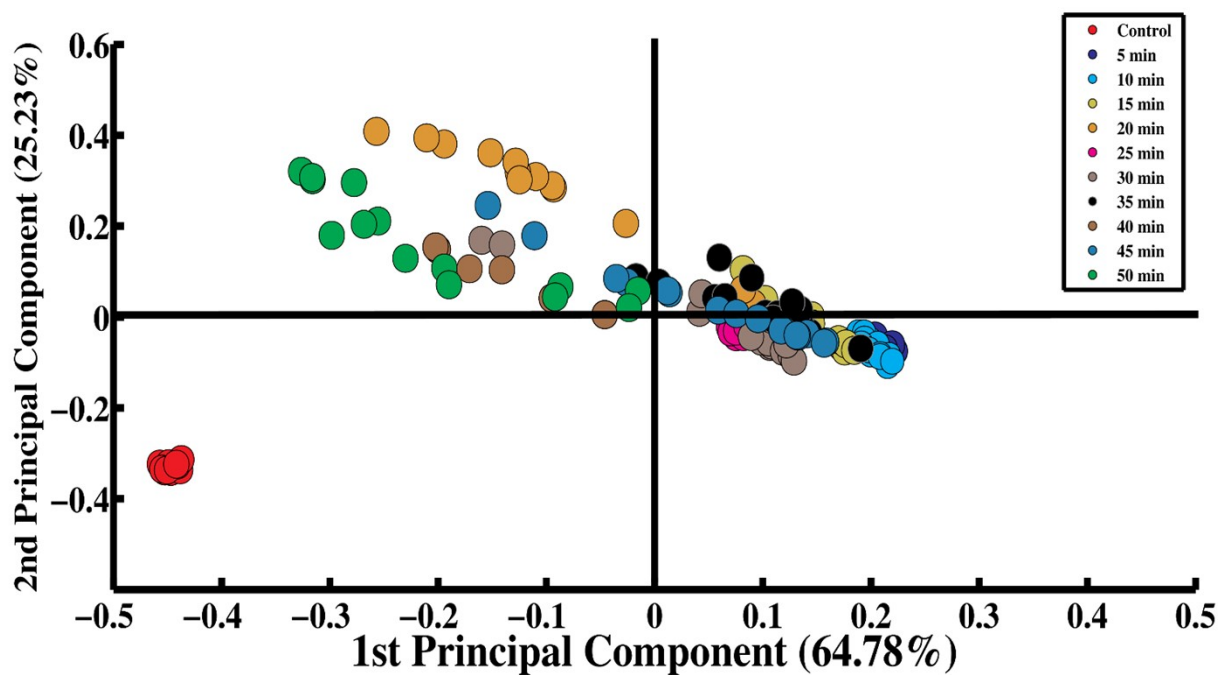


Fig. S5: PCA Scatter plot of SERS spectra of control and phage exposed *S. aureus* bacterial samples including 5- 50 minutes with 5 minutes of exposure each.

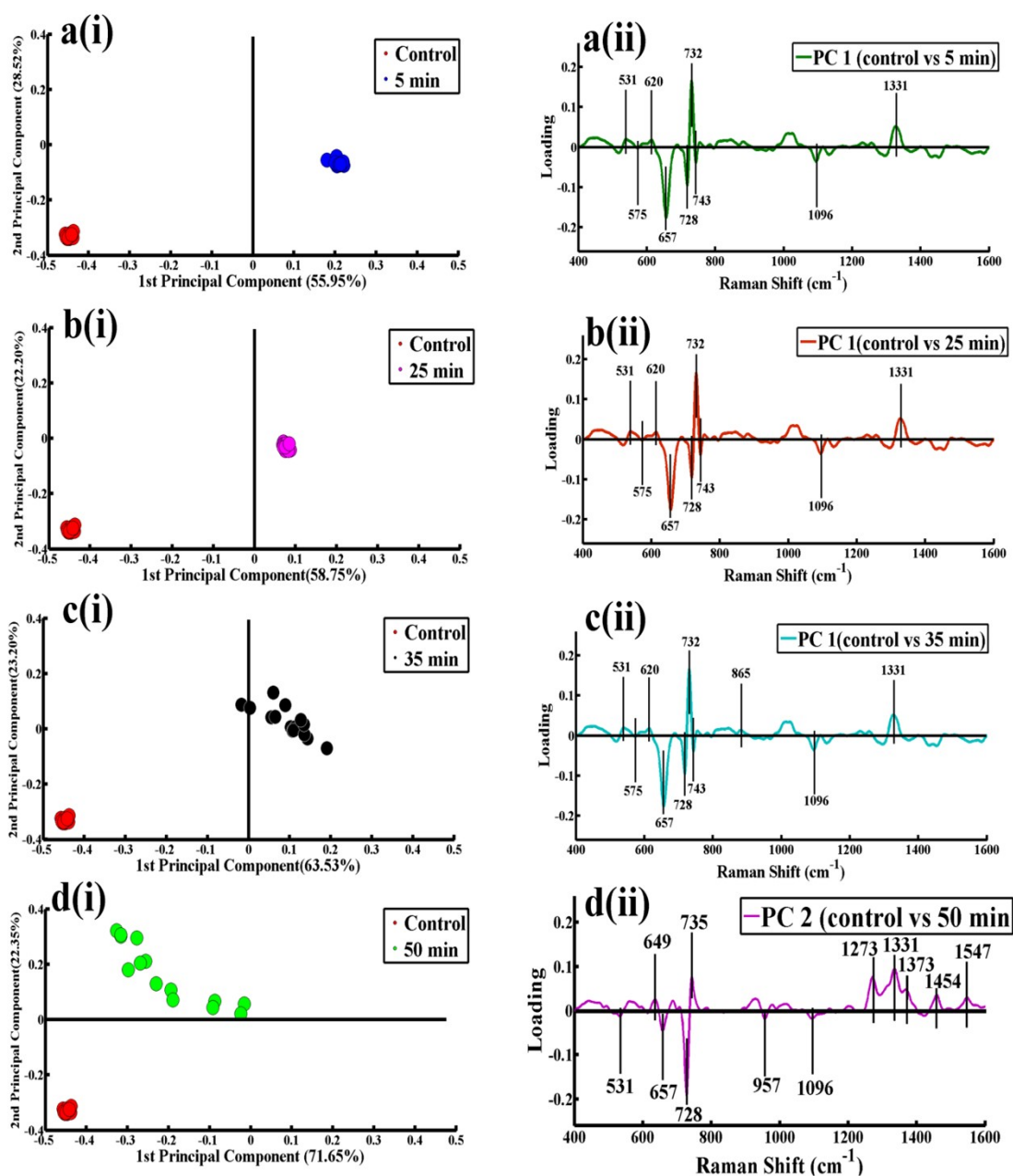
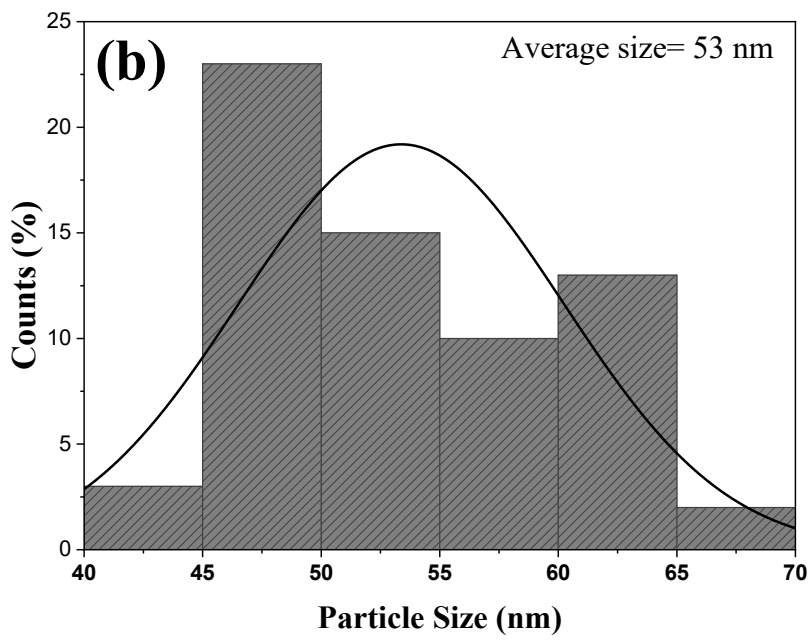
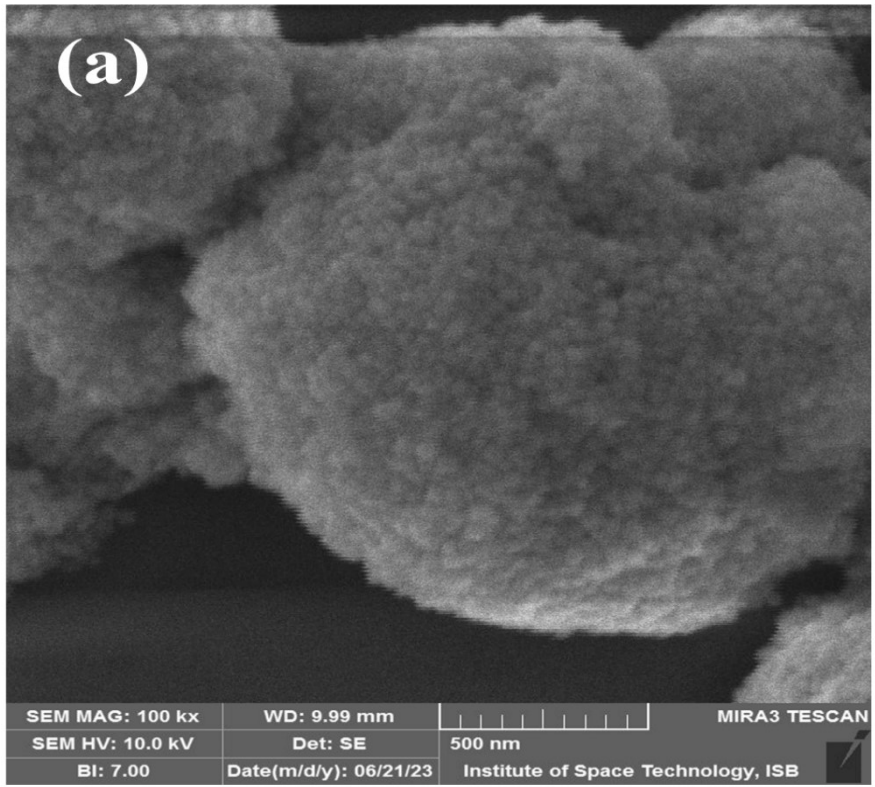


Fig. S6: PCA scatter plots and loadings of the SERS spectral data sets **a(i)** Scatter plot of the control and 5 minutes of intervals. **a(ii)** Loading between control and 5 minutes of intervals. **b(i)** Scatter plot of the control and 25 minutes of intervals. **b(ii)** Loading between control and 25 minutes of intervals. **c(i)** Scatter plot of the control and 35 minutes of intervals. **c(ii)** Loading between control and 35 minutes of intervals. **d(i)** Scatter plot of the control and 55 minutes of interval. **d(ii)** Loading between the control and 50 minutes of interval.



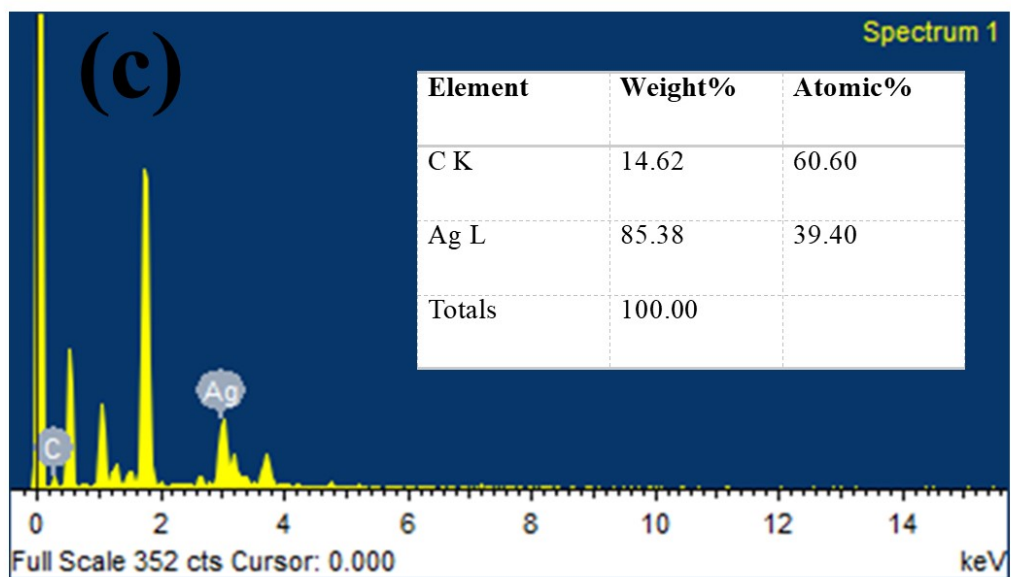


Fig. S7: SEM image of AgNPs (a), Histogram of AgNPs size (b) and elemental analysis of AgNPs through EDX (c).

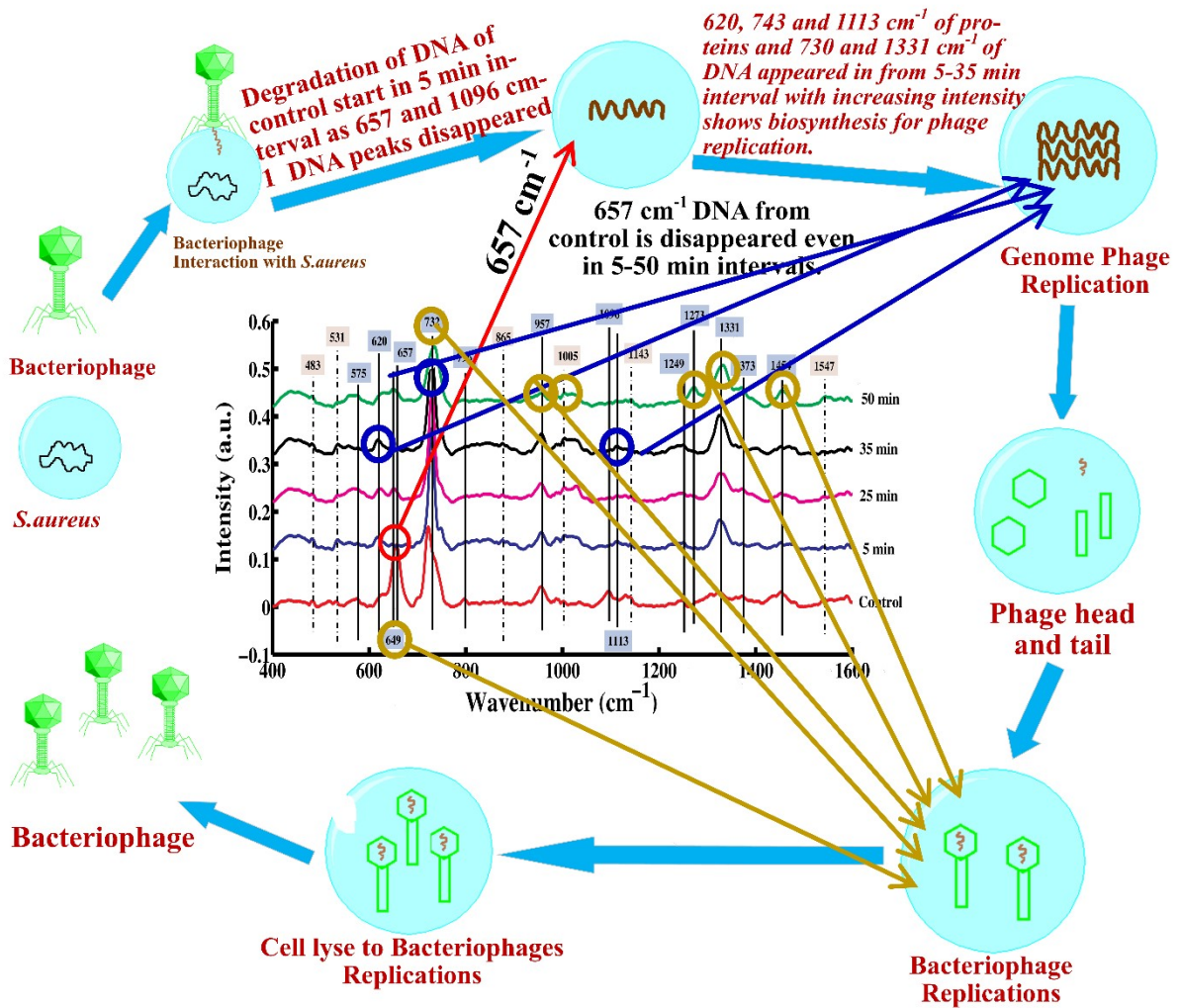


Fig. S8: Proposed schematic diagram of SERS characterization of bacteriophage infected *S. aureus* bacteria.