

An Evaluation of Antimicrobial potency of Silver Nanoparticles Synthesised from *Fusarium sp.*

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Background

- Today in the world antimicrobial resistance has proved to be among the major and urgent risks to human health.
- It makes prevention and successful treatment of persistent diseases difficult.
- Misuse and overuse of medications in the health sector largely contribute to the emergence of the resistance.
- Alternative antimicrobials that are not prone to resistance have to be explored and in this study silver nanoparticles were investigated as potential antimicrobials.

Methodology

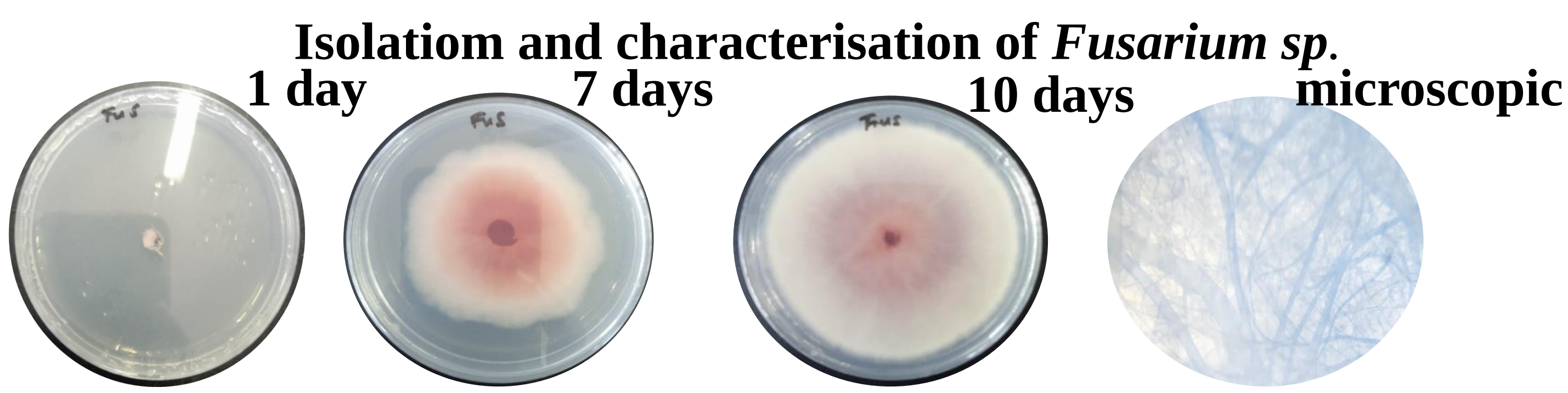
Isolation and characterisation of *Fusarium sp.*

Synthesis optimisation of silver nanoparticles

Characterisation of the synthesised silver nanoparticles

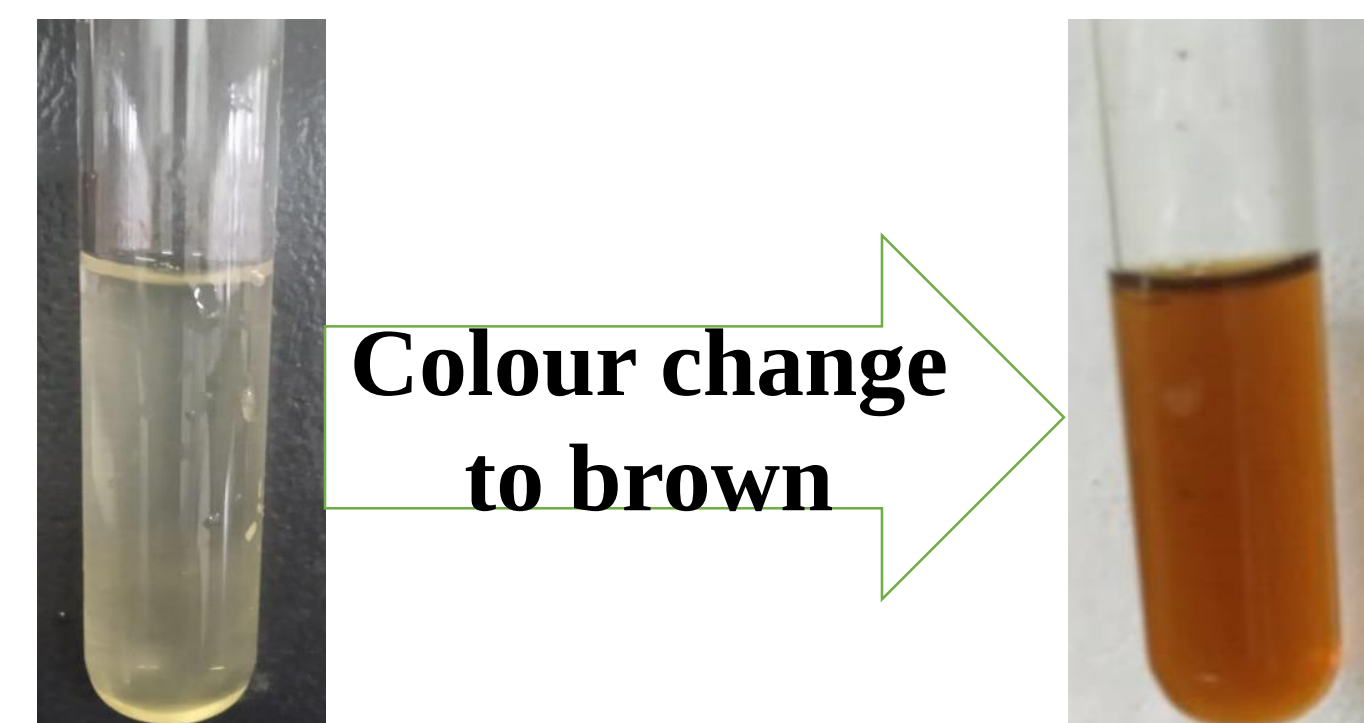
Antimicrobial Studies

Results and Discussion



Fungal biomass growth on PDB after 14 days

Colour change during synthesis



Silver nitrate solution + *Fusarium sp.* cell filtrate Silver nanoparticles solution

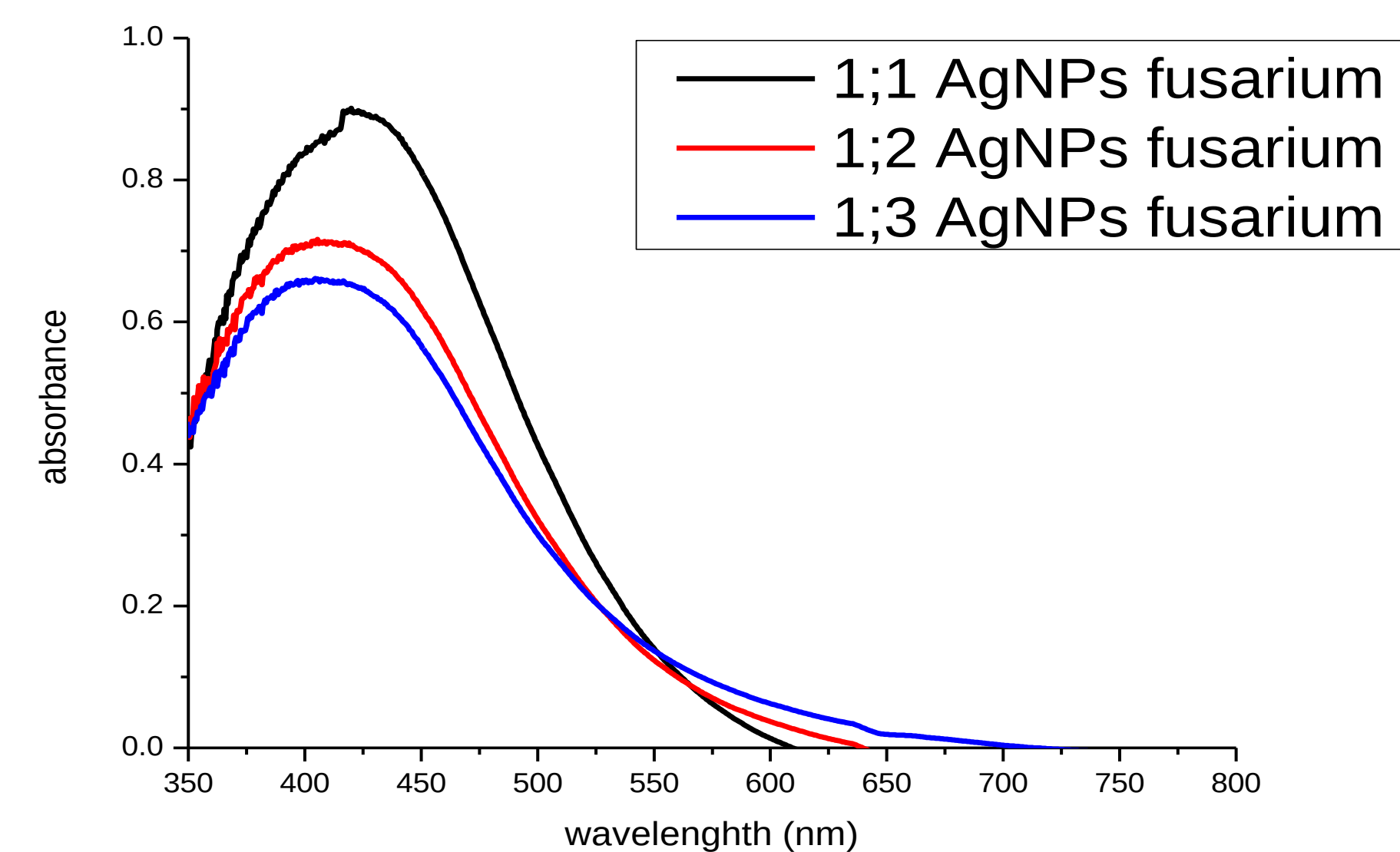


Figure 1: UV-Vis spectra of AgNPs obtained from varying the combination ratios

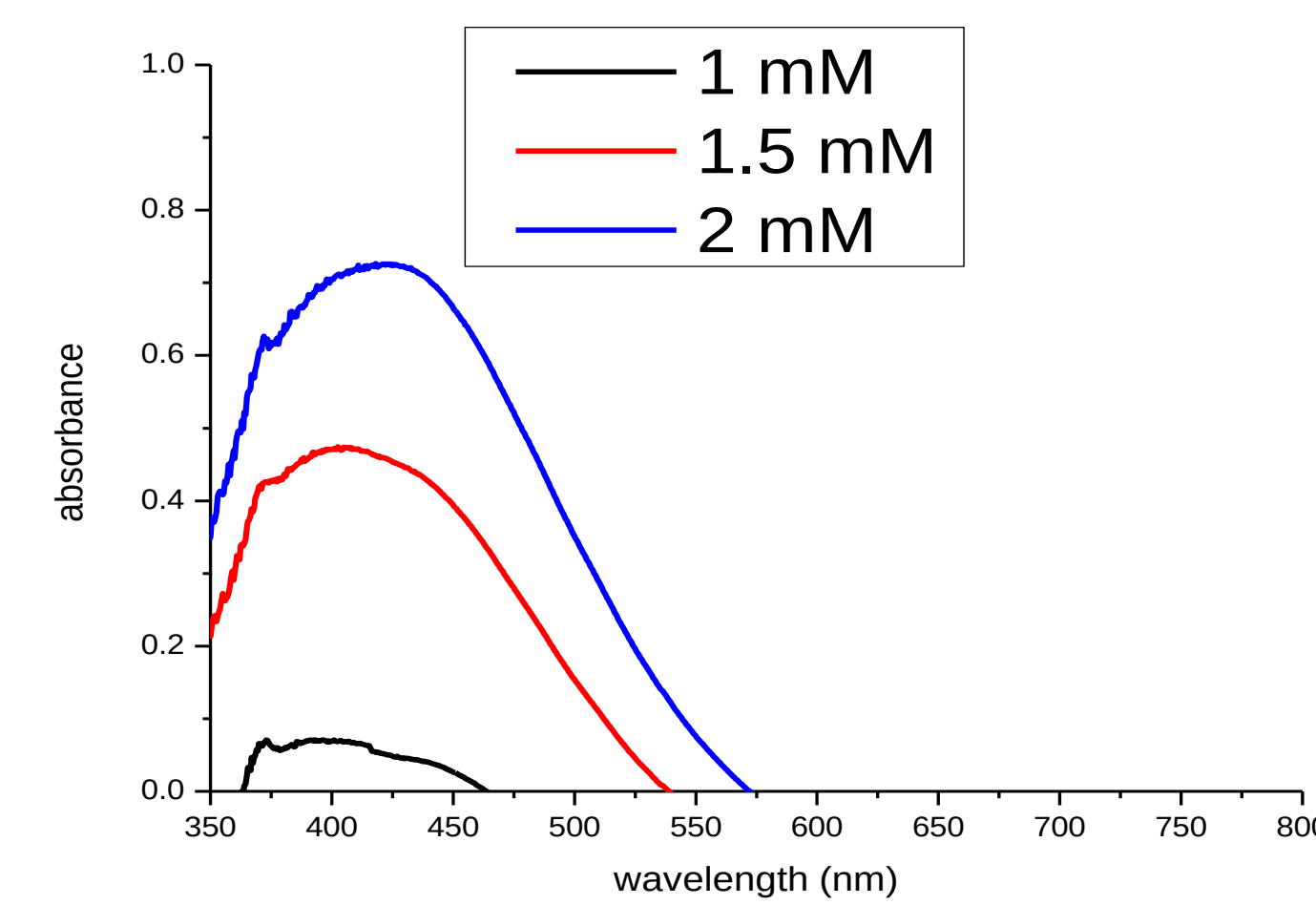


Figure 2: UV-Vis spectra of AgNPs obtained from varying the contact concentration

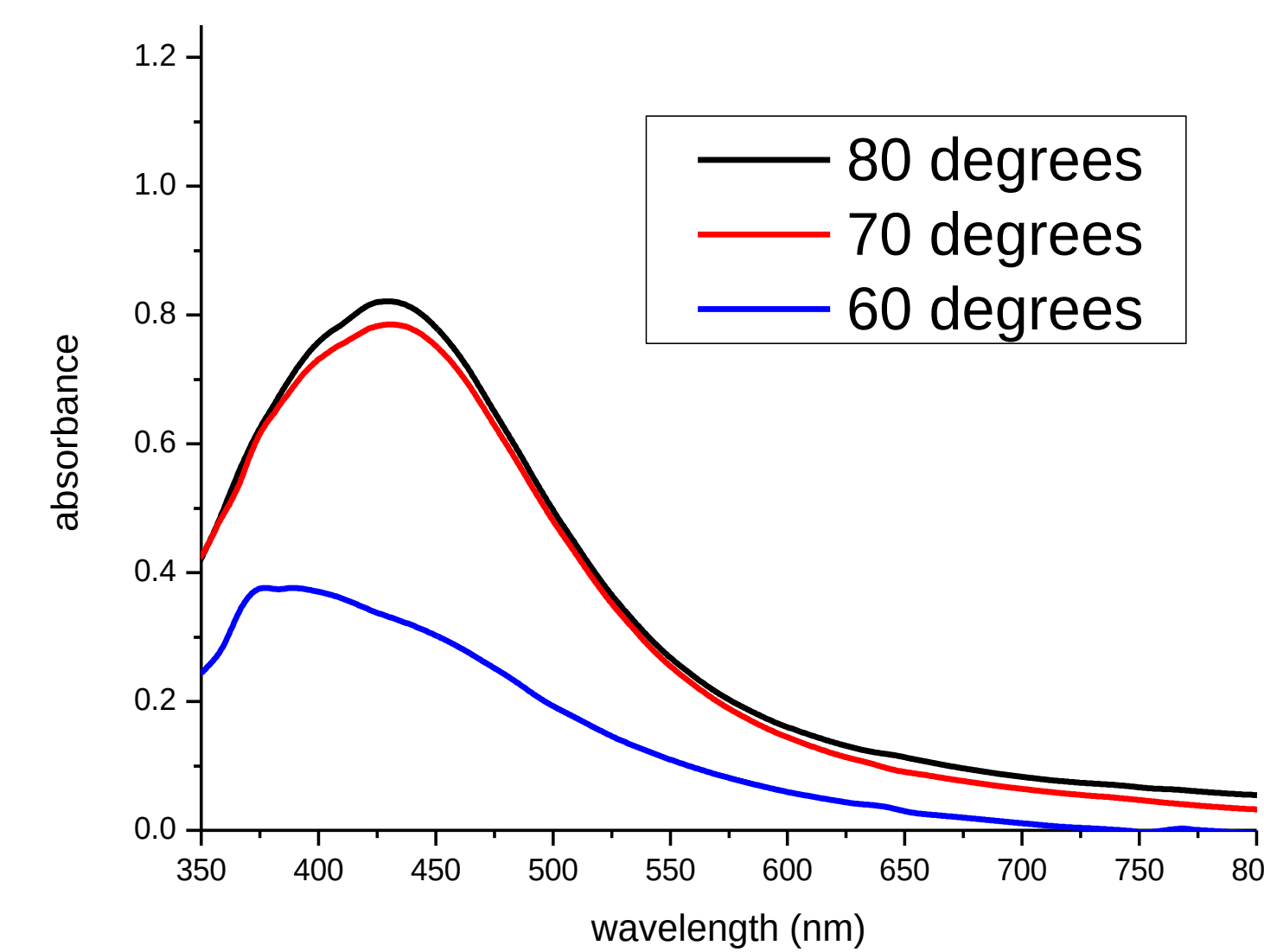


Figure 3: UV-Vis spectra of AgNPs obtained from varying the contact temperature

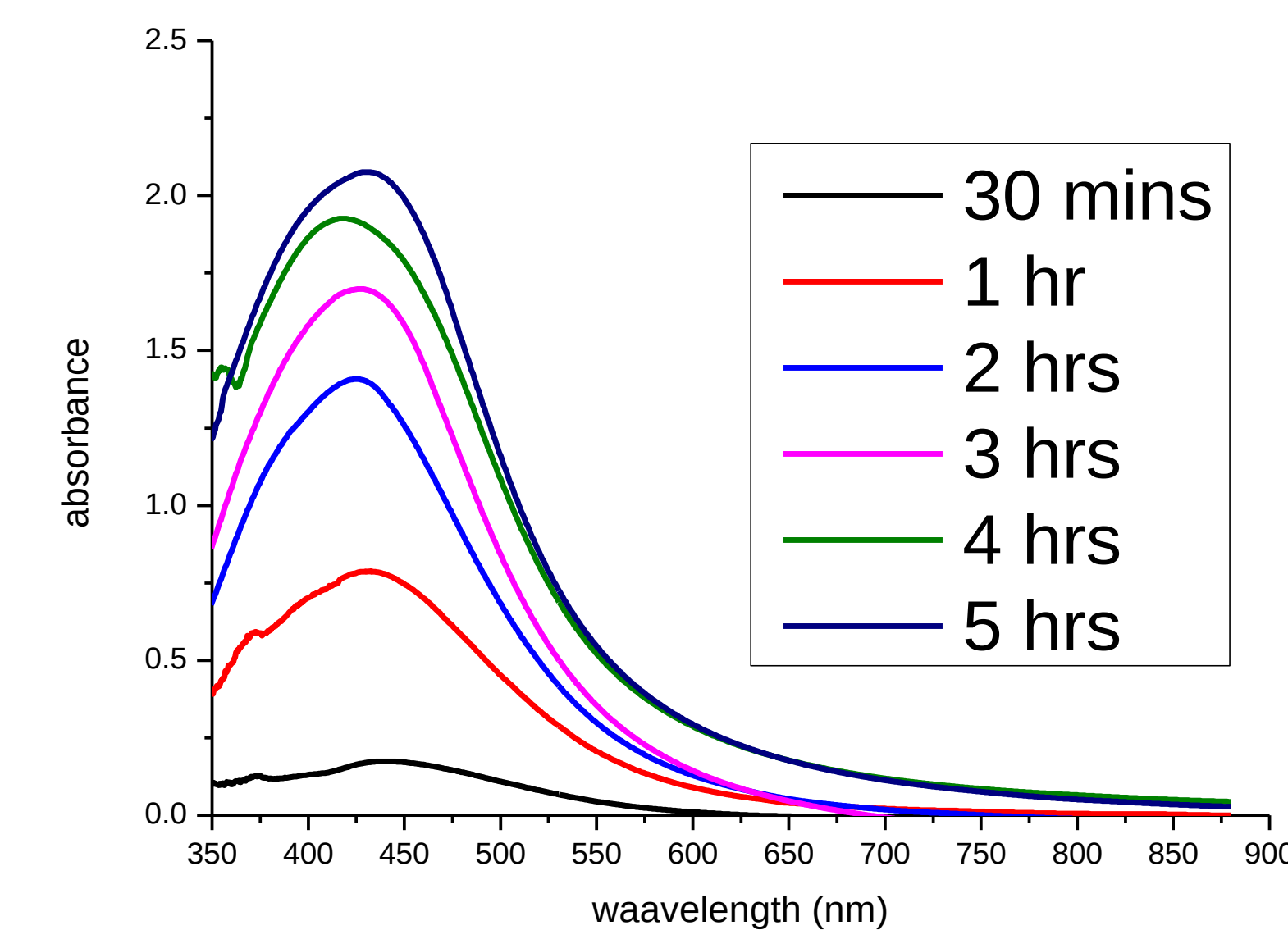


Figure 4: UV-Vis spectra of AgNPs obtained from varying the contact time

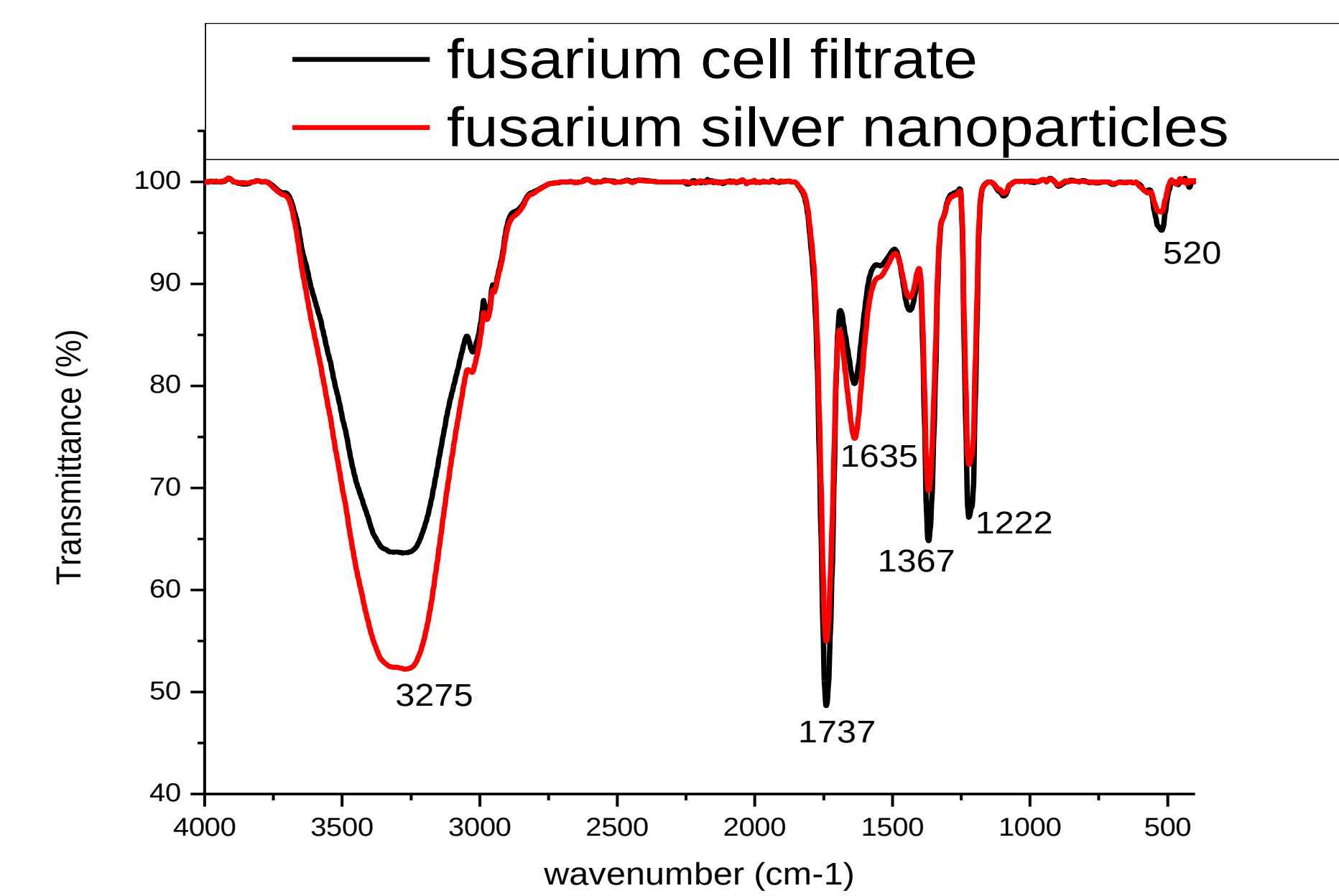


Figure 5: FTIR spectra of *Fusarium sp* silver nanoparticles

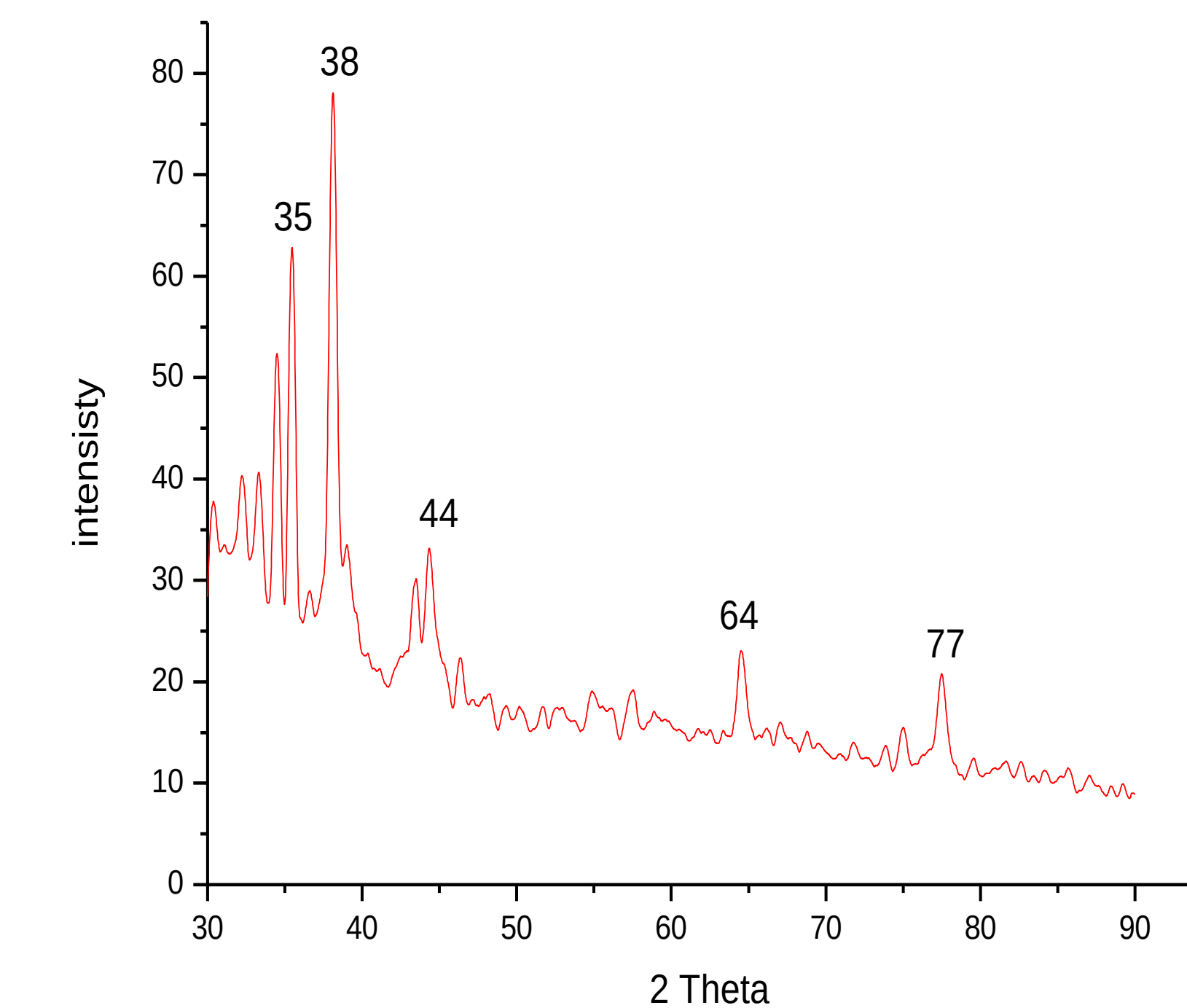


Figure 6: X-ray diffractogram of *Fusarium sp.* AgNPs

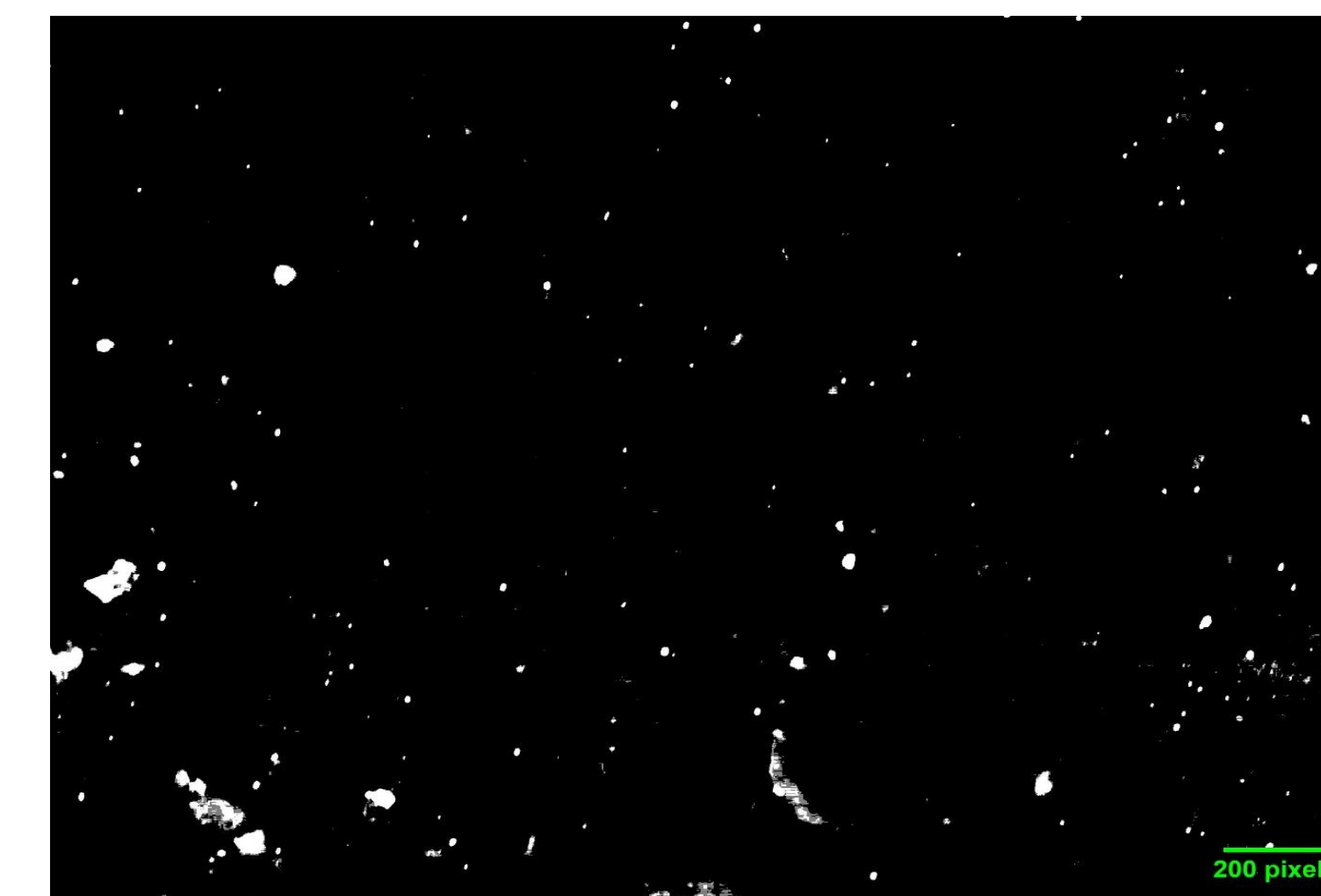
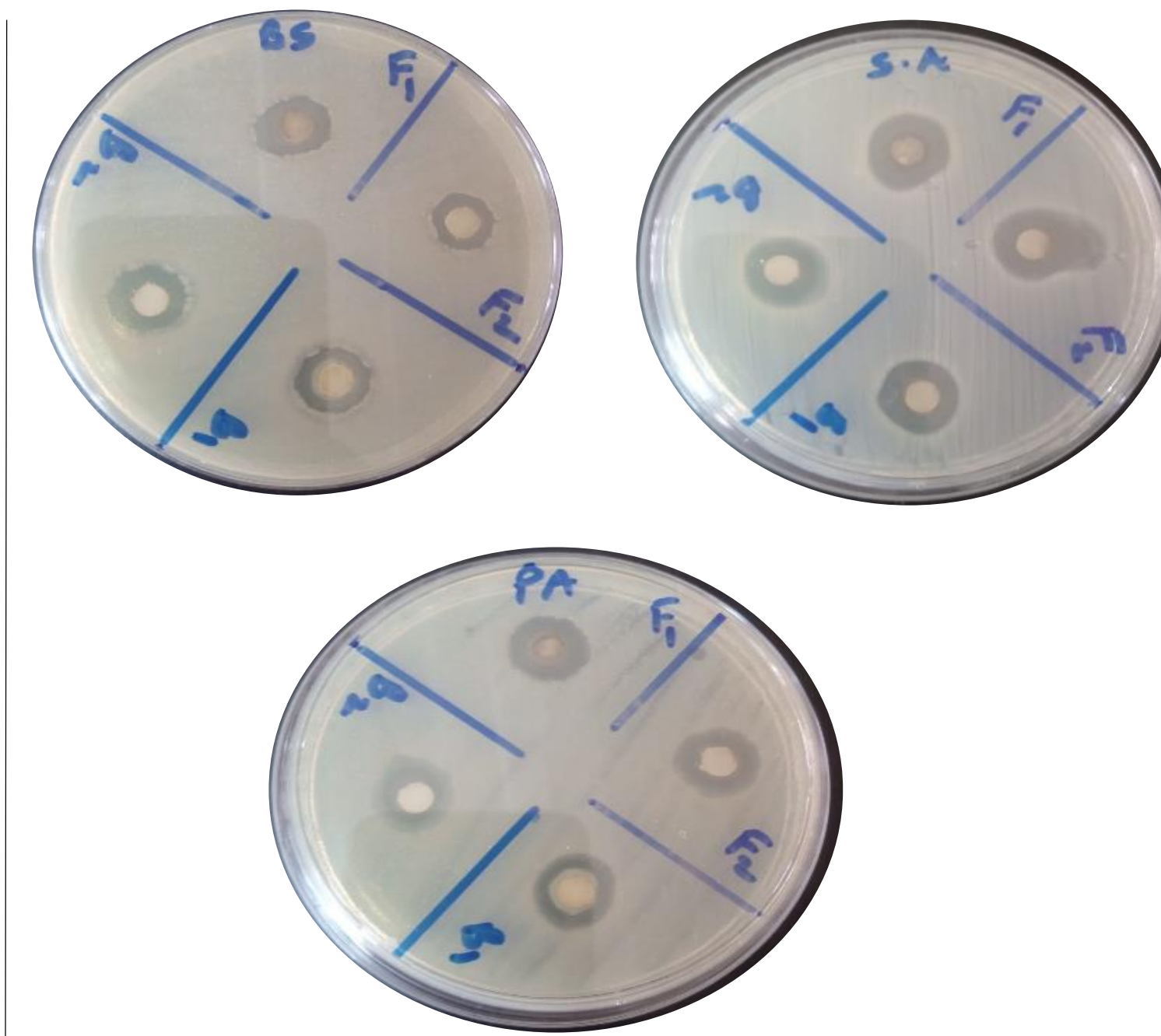


Figure 7: Nanoparticles appearance on Scanning Electron Microscope.



Activity screening against *B. subtilis*, *S. aureus* and *P. aeruginosa*

Conclusion

Silver nanoparticles synthesized from *Fusarium sp.* had good antimicrobial properties and hence can act as good antimicrobials.

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