ABSTRACT

Fungal flora of Laam Leek Forest, Kumrat Valley, Khyber Pakhtunkhwa was investigated in the current study. Almost 18 different mushrooms belonging to 8 different families and 10 different genera were collected and characterized morpho- anatomically. Twelve mushrooms were analyzed on molecular basis which revealed that *Ramaria schildiii f. griseoavellaneae* is the new record for Pakistan. FTIR spectroscopy analysis showed different functional groups and various bioactive compounds that were present in the mushroom extract of *Fomes fomentarius*. The biological screening of the mushroom extracts was also carried out to determine their antioxidant and antibacterial potential. From the collected mushrooms *Fomes fomentarius* was selected for the mycosynthesis of silver oxide nanoparticles and characterized through UV- visible spectrometry with maximum absorption peak at 480nm. FTIR analysis revealed the biomolecules responsible for the reduction of metal salt and stabilization of silver nanoparticles. The crystalline nature of the nanoparticles was assessed through XRD and the size and surface morphology was determined through SEM analysis of the nanoparticles. The silver oxide nanoparticles mushroom extract of *Lepiota magnispora* were biologically screened to determine their antioxidant and antibacterial potential. The results showed that silver oxide nanoparticles had the maximum antioxidant activity as compared to the mushroom extract. In antibacterial activity, mycosynthesized silver oxide nanoparticles showed maximum zone of inhibition against both the gram positive bacteria (*P. anaerobius* and *B. subtilis*) and gram negative bacteria (*P. dentrificans* and *P. maltophila*) as compared to the mushroom extracts.