**Table S1**: Heavy metals present in*Pleurotus ostreatus* mushroom-derived β-Glucan particles along with their concentrations are shown in this table.In heavy metal analysis, the maximum content of iron was found to be present in the prepared β-Glucan particles. Zinc concentration was also significant with the amount 112ppm. Cadmium is a harmful heavy metal and it was found in the minimum concentration in our analysis.

|  |  |
| --- | --- |
| Metal | Amount (in ppm) |
| Iron | 408± 0.75 |
| Lead | 8.3± 0.12 |
| Cadmium | 0.27± 0.20 |
| Copper | 5± 0.34 |
| Manganese | 6± 0.26 |
| Nickel | 18.3± 0.15 |
| Zinc | 112± 0.42 |

**Table S2**: Minimum Inhibitory Concentration of Standard drugs and β-Glucan particles against various bacterial strains.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Drug (μg/ml)** | ***E. coli*****(MTCC 443)** | ***P. aeruginosa*****(MTCC 1688)** | ***S. aureus*****(MTCC 96)** | ***S. pyrogenes*****(MTCC 442)** |
| **Gentamycin** | 0.05 | 1 | 0.25 | 0.5 |
| **Ampicillin** | 100 | 100 | 250 | 100 |
| **Chloramphenicol** | 50 | 50 | 50 | 50 |
| **Ciprofloxacin** | 25 | 25 | 50 | 50 |
| **Norfloxacin** | 10 | 10 | 10 | 10 |
| **β-Glucan particles** | 62.5 | 125 | 125 | 100 |

**Table S3**: The table shows the zone of Inhibition of β-Glucan particles and standard drugs. *Pleurotus ostreatus* mushroom derived β-Glucan particles are showing a zone of inhibition against bacterial strains which proves that particles have efficient antibacterial activity.

|  |
| --- |
| **Antimicrobial activity of *Pleurotus ostreatus* mushroom derived β-glucan particles** |
| **Standard Strain** | **Zone of Inhibition (**cm**) of β-Glucan****particles (μg/ml)**  | **Zone of Inhibition of****standard drugs (μg/ml)** |
| **5** | **25** | **50** | **100** | **25****0** | **50****0** | **5** | **25** | **50** | **10****0** | **25****0** | **50****0** |
| ***E. coli*** | - | 12± 0.28 | 15± 0.21 | 16± 0.31 | 19± 0.43 | 21± 0.26 | - | 20± 0.22 | 23± 0.29 | 28± 0.20 | 28± 0.41 | 28± 0.23 |
| ***P. aeruginosa*** | - | 13± 0.28 | 14± 0.69 | 16± 0.47 | 17± 0.79 | 19± 0.56 | - | 20± 0.19 | 23± 0.89 | 24± 0.59 | 26± 0.72 | 27± 0.48 |
| ***S. aureus*** | - | 14± 0.40 | 17±0.49 | 19±0.68 | 21±0.65 | 22±0.74 | - | 17±0.13 | 19±0.25 | 21±0.48 | 22±0.78 | 22±0.42 |
| ***S. pyrogenes*** | - | 13±0.16 | 15±0.28 | 16±0.46 | 18±0.56 | 21±0.69 | - | 16±0.20 | 19±0.22 | 21±0.39 | 21±0.52 | 22±0.51 |
| ***C. albicans*** | - | 12±0.18 | 14±0.33 | 15±0.48 | 16±0.25 | 19±0.53 | - | 18±0.16 | 21±0.29 | 22±0.64 | 22±0.60 | 24±0.57 |

**Table S4:** MIC of standard drugs and β-Glucan particles against fungal strains indicating that *Pleurotus ostreatus* mushroom derived β-Glucan particles have significant anti-fungal activity.

|  |
| --- |
| **Minimum Inhibitory Concentration** |
| **Drug** | ***C. albicans*****(MTCC 227)** | ***A. niger*****(MTCC 282)** | ***A. clavatus*****(MTCC 1323)** |
| **Nystatin** | 100 | 100 | 100 |
| **Greseofulvin** | 500 | 100 | 100 |
| **β-Glucan particles** | 500 | 500 | 1000 |