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## Antimicrobial and antimalarial properties of secondary metabolites of an endophytic fungus isolated from *Azadirachta indica* (meliaceae)

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**Background information:** Natural products of endophytic fungi have generated significant interest in drug discovery programmes due to their immense potential to contribute to the discovery of new biologically active molecules.

**Purpose:** This study was carried out to investigate the antimicrobial and antimalarial properties of secondary metabolites of an endophytic fungus isolated from leaves of *A. indica*.

**Method:** Endophytic fungal isolation, solid state fermentation in rice medium; and extraction of secondary metabolites were carried out using standard methods. The fungal extract was screened for antimicrobial and antimalarial activities using the agar well diffusion method and Peters' 4-day suppressive test respectively. The extract was also subjected to HPLC analysis to identify its constituents.

**Results:** At 1 mg/mL, the fungal extract inhibited the growth of *Pseudomonas aeruginosa*, *Bacillus subtilis*, *Escherichia coli* and *Candida albicans* with inhibition zone diameters of 6, 4, 5, and 4 mm respectively. Also, at doses of 150 and 50 mg/kg/day, the extract displayed a dose dependent suppression of *Plasmodium berghei* by 89 and 83% respectively. HPLC analysis of the extract revealed the presence of several biologically important compounds including protocatechuic acid, ruspolinone, dimethyl gallate, indole-3-carbaldehyde, 4-methoxy benzaldehyde, 2-carboxymethyl-3-n-hexylmaleic acid anhydride, pestalotioprolide F and p-hydroxy-phenyl-acetic acid.

**Conclusion:** The results of this study reveal the potentials possessed by endophytic fungi of *A. indica* as sources of biologically active compounds with pharmaceutical importance.