

Determination of antibacterial activity of *Xylaria feejeensis* endophytic fungi from *Geophila repens*

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Geophila repens is a perennial herb with medicinal properties in the Rubiaceae plant family. Interestingly, the plant is reported to exhibit antifungal, antioxidant, antibacterial, and anticholinesterase activity. Different parts of the plant are used to treat different diseases such as diarrhea, soreness, earache, cough, and intestinal ailments. Previous studies have shown the antioxidant and antibacterial effects of this plant, however, these effects in relation to its inhabitant endophytes are poorly explored. The objective of this study was to isolate endophytic fungi from this plant and to study antibacterial properties of them. The *G. repens* plant was obtained from the Ayurveda Research Institute, Navinna, and was authenticated by National herbarium, Peradeniya. In order to isolate endophytic fungi of the plant, surface sterilized stem segments were cultured on PDA media for 10-15 days at room temperature. Several fungi were isolated and morphologically identified. Out of many, one fungus was DNA sequenced using universal primers ITS1 and ITS4 and identified as *Xylaria feejeensis*. Ethyl acetate (EtOAc) and methanol (MeOH) extracts of *X. feejeensis* were prepared and both extracts were tested for its antibacterial activity. The antibacterial activity was conducted against two Gram-positive (*S. aureus*-ATCC 25928, *Bacillus cereus* –ATCC 11778) and two Gram-negative (*P. aeruginos*–ATCC 9027, *E.coli*-ATCC 35218) bacteria by disk diffusion method. Gentamycin was used as the positive control and the solvent itself was used as the negative control. Only the EtOAc extracts of *X. feejeensis* showed significant antibacterial activity against both Gram positive bacteria *S. aureus* (10.3 ± 0.6 mm for 300 $\mu\text{g}/\text{disk}$) and *B. cereus* (12 ± 0.1 mm for 600 $\mu\text{g}/\text{disk}$). Minimum inhibitory concentration (MIC) of EtOAc extract of *X. feejeensis* for *S. aureus* is 50 $\mu\text{g}/\text{disk}$ (6.8 ± 0.3 mm) and *B. cereus* 100 $\mu\text{g}/\text{disk}$ (7.2 ± 0.2 mm). Further, these results revealed that the presence of compounds with antibacterial activity in the isolated fungal extract. The investigations of endophytic fungi with effective antibacterial activity demonstrate the potential for producing novel drug leads.

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