



Forensic molecular study using ITS region as a clue and possible fungal outbreak pre-warning indicator

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Abstract : The PCR primers ITS1 and ITS4 are commonly used to gain wide acceptance for work with fungal Internal Transcribe Sequences (ITS) that amplify the highly variable ITS1 and ITS2 regions. ITS region was evaluated for mixed human blood sample differentiation. Some of these fungal pathogens can affect both human and animal and can contaminate the environment, or may establish new enzootic foci. Total of 70 blood samples were collected in the EDTA tube that include (20 healthy (non-symptomatic) human blood samples, 20 sheep blood samples, 20 chicken blood samples and 10 human blood of leukemia patients. Blood culture has showed no results even when Blood agar plates were incubated for a week. PCR result showed that mycosis in human leukemia patient 70% in comparison with 30% in non-symptomatic samples. Positive human blood can be differentiated in mixed samples using this primer pair. Chicken and sheep were found infected by 40% and 20% respectively. Fungal infection detection using ITS region can facilitate determination of geographical area and human involvement in some forensic cases where mixed blood samples are present. Determination of fungal strain aid in putting a cut edge in zoonotic infection outbreak and provide information in possible bio-terrorism attack origin.

Key words: Forensic microbiology, ITS region, Fungal infection.

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