

The Internal Transcribed Spacer (ITS) region is the most widely sequenced DNA region in fungi by PCR analysis. The sequence comparison of the fungi ITS region is widely used in taxonomy and molecular phylogeny due to the high copy number of rRNA genes. Furthermore, it is easy to amplify even from small quantities of DNA and

has a high degree of variation between closely related species. It is the most useful molecular systematics at the species level, and even within species (Takamatsu and Kano, 2001). To be specific, the primer pair of ITS1+ITS4 has been used to identify the fungi species of ascomycetes, basidiomycetes, mastigomycetes and mitosporic fungi (White *et al.*, 1990). The PCR annealing

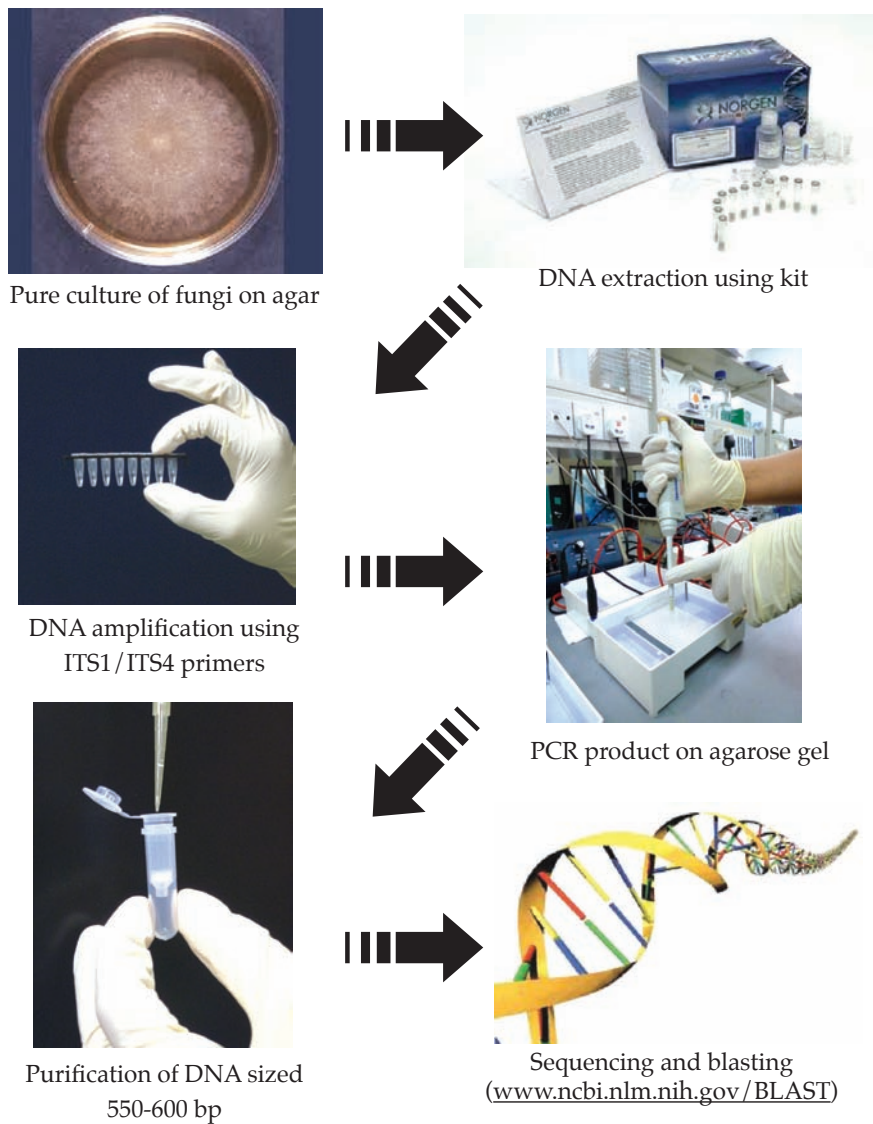


Figure 1. Fungal identification using MPOB Fungal Identification System 1 (FIDS 1).

temperature most specific for ascomycetes was found to be 64°C for the primer pair. At this annealing temperature, all the ascomycetous DNA samples were amplified efficiently with the ITS1 and ITS4 primers.

### **METHODOLOGY**

A summary of the process of fungal identification using MPOB Fungal Identification System 1 (FIDS 1) is presented in *Figure 1*. DNA analysis has become the most preferred method of identification, since it provides a more stable determination of isolate identity. PCR-based fingerprinting has been used for assessing the genetic diversity of many microorganisms. Depending on the primers and amplification conditions employed, the results allow discrimination between organisms at the level of genera, species or strains.

### **BENEFITS**

The service offered is a reliable method to identify fungal species from various samples using rapid fungal identification by PCR analysis. The service is inclusive of DNA extraction, PCR amplification, gel electrophoresis, DNA purification, sequencing, blasting and interpretation of the results.

### **COST**

The fee of a strain of fungi is RM 1800. The fee may be revised without prior notice.

### **REFERENCES**

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