Isolation and identification of Eurotium species from contaminated rice by morphology and DNA sequencing.

Abstract

30 milled rice samples were collected from retailers in four states of Malaysia. These samples were evaluated for Eurotium spp. contaminations by direct plating on malt extract salt agar (MESA). All Eurotium were isolated and identified based on morphology and nucleotide sequences of internal transcribed spacer 1 (ITS1) and ITS2 of the rDNA. Four Eurotium species (E. rubrum, E. amstelodami, E. chevalieri and E. cristatum) dominated seed samples were identified. The main characteristics for morphological differentiation of Eurotium species were colony features on different culture media and ascospore surface ornamentations. The PCR-sequencing technique for sequences of ITS1 and ITS2 is a fast technique for identification of Eurotium species, but did not work perfectly for differentiating Eurotium species from each others. DNA sequence analysis showed a fixed sequence numbers in both ITS1 and ITS2 regions. These results suggest that sequencing of ITS regions could support morphological characteristics for identification of Eurotium species.

Keyword: Rice; Eurotium; Morphological characteristics; DNA sequencing.