# NEURAL NETWORK BASED IDENTIFICATION OF TRICHODERMA SPECIES

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**Abstract:** The genus *Trichoderma* acts as an important antagonist against phytopathogenic fungi. This paper proposes a software-based identification tool for recognition of different species of *Trichoderma*. The method uses the morphological features for identification. Morphological-based species recognition is common method for identifying fungi, but regarding the similarity of morphological features among different species, their manual identification is difficult, time-consuming and may bring about faulty results. In this paper it is intended to identify different species of *Trichoderma* by means of neural network. For this purpose, 14 characteristics are used including 5 macroscopic and 9 microscopic characteristics. After quantifying qualitative features and training a multilayer perceptron neural network with quantified data, 25 species of *Trichoderma* are recognized by using the network. Totally, identification of *Trichoderma* species as one useful fungus is achieved by using the trained network.

Key words: *Trichoderma spp., classification, multilayer perception network, feature quantification*

## 1. Introduction

The fungal genus *Trichoderma* (Ascomycetes, Hypocreales) is the most common saprophytic filamentous imperfect fungi that functions as a biocontrol agent for a wide range of economically important aerial and soilborne plant pathogens such as *Fusarium, Pythium, Sclerotinia, Rhizoctonia*and *Botrytis* in crop plants [10, 2]. In addition, *Trichoderma* has been reported to be effective in promoting plant growth [12, 26] and to have the ability to resist against inducement in the plants [14]. Several strains of the genus *Trichoderma* are being tested as alternatives to

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