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# A new species of *Ovatospora pseudomollicella and Chaetomium madrasense* Isolated from red wood ( *Sequoia sempervirens*) and Teak wood (*Tectona grandis*) in Iraq

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**ABSTRACT**

The aim of the experiment to isolated fungi and diagnose brown rot on red and teak wood in Iraq by PCR Technique, The isolated fungi showed a significant weight loss during the incubation period. This study was a first report of *Ovatospora pseudomollicella* on red wood and *Chaetomium madrasense* on teak wood in Iraq.



## 1. INTRODUCTION

Wood is used in various fields as a result of its flexibility it is an important food source for fungi Which works on the analysis of wood with time and in under specific conditions through attacking the natural polymers in the cell walls [10]. It was found that the infection of wood with brown rot fungi and the decomposition of the cell wall material causes Significant loss in strength, as weight loss by 3% Can cause a significant loss in wood strength of up to 70% [2]. The components of wood and the way it is formed is responsible for the extent of its vulnerability to fungal attack and the way to resist it. Thus, it will affect the properties of wood [5]. The *Ovatospora pseudomollicella and Chaetomium madrasense* not registered on timber in Iraq,

Chaetomiaceae family Sordariomycetes is considered as one of the biggest families of Saprotrophic Ascomycetes fungi include the *Chaetomium* are able of colonizing various substrates, as well as that capacity to degradation the cellulose and also output a types of Bioactive metabolites. Many types are described in *Ovatospora* and *Chaetomium*, some of these types have been causes allergens because of production of microbial volatile organic compounds and mycotoxins as well as the liberation of Ascospores and hyphal fragment in the indoor environmental [7].

*Chaetomium* spp. was used as fungicide the fungal has been formulated into Bio powders and Bio pellets under the trade name {Ketomium} for the Biological control of insect pest also used as Bioinsecticide for Biological control of plant disease [1].

The molecular identification of *Chaetomium* and *Ovatospora* are very limited so are necessary other Molecular studies on *Chaetomium* and *Ovatospora* [8]. [6] big effort has been made to classify and identify than strictly gathering various species of *Chaetomium* based on (DNA) sequencing.

## 2. Materials and Methods

### *2.1 Identification of O. pseudomollicella and Ch. madrasense (PCR)*

DAN was extracted from a pure colony of fungi which formerly grow on Potato Dextrose that isolated from red and teak wood as a: template in polymerase chain reaction (PCR) for detection the fungi by the kit was ready {TO_GO_PCR} Beads From american company illinois {GE} healthcare. So that the final reaction volume is {25} µl which it contains the prime component as {1} µl from all prefixe ITS1and ITS4 for multiplied an district the internal transcribed spacers {ITS} [9]. As well as the result of Polymerase Chain Reaction sequenced was send off macrogen, Inc. Seoul_ South of Korea. The sequences of phylogenetic analyses were performed utilization {MEGA6}. The generated sequences were sent to the GenBank database where gived with a specific an extension number.

### *2.2 Degradation Test*

The wood pieces are chosen randomly from damage than cut into pieces according to the standards dimensions 3 * 1 * 5.0 cm in long [4]. After that put the pieces of wood in the autoclaved for sterilization than dried pieces in an oven with 105 °C the drying time may be up to tow days (until stability weight). thereafter put the samples of wood in injected with the fungi in. then the flasks were incubated at {25 -27} ° C after three monthos from the inoculated pieces of wooden were washed, dried then weighed was calculated according to the following:

$$\text{Weight loss percentage} = \frac{\text{Weight of cutting wood without fungus} - \text{weight it with fungus}}{\text{Weight of cutting wood without fungus}} * 100$$

## 3. Results and Discussions

### *3.1 Identification of O. pseudomollicella and Ch.madrasense (PCR)*

Figure (1&2) explain the molecular identification of the isolates was carried by multiplex (PCR) analysis for *O. pseudomollicella* and *Ch.madrasense* species complex and related species that cause deterioration of the wood . Extracting the DNA of fungi under consideration based on the amplification Products Size five hundred bp fragment with {ITS1, ITS4} primers in PCR. The isolates from timbered has been diagnosed by Molecular diagnostics for each of the *O. pseudomollicella* and *Ch.madrasense*.the sequences was placed in the Genbank- Database - of the National- Center for - Biotechnology - Information (NBCI), which was given the serial code (MW829525.1) to *O. pseudomollicella* and(MW829520.1) to *Ch.madrasense*.

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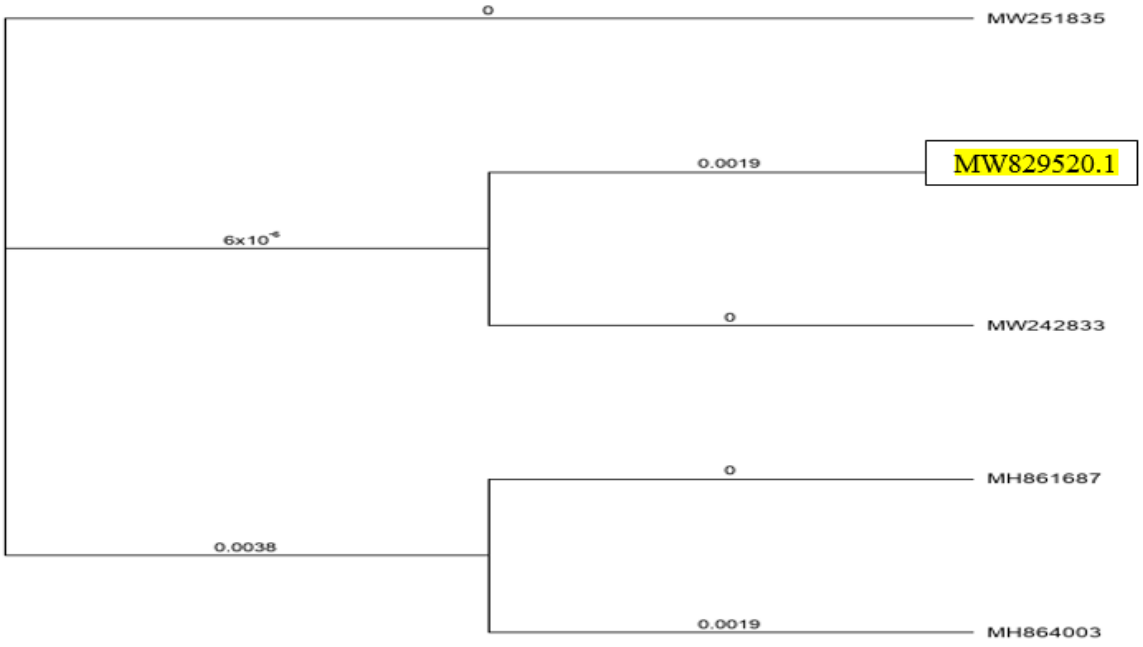


**Figure (1):** Phylogenetic tree of *O.pseudomollicella*.

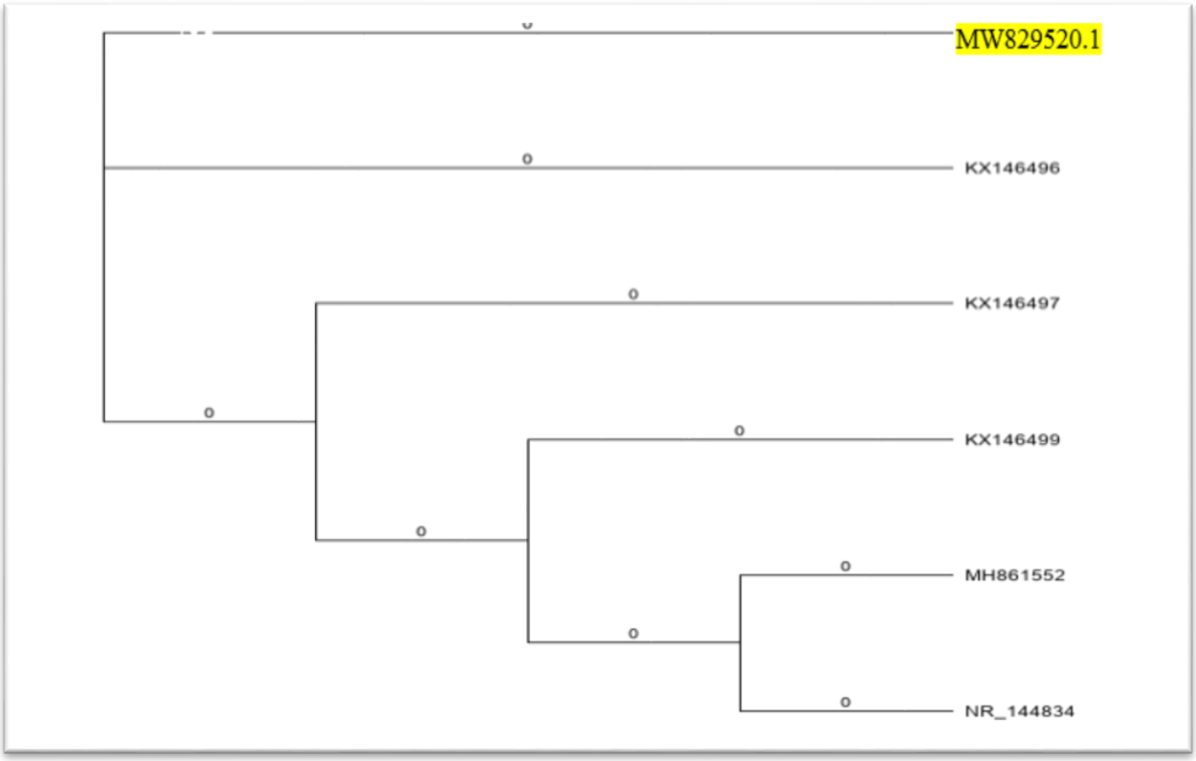


**Figure (2):** Phylogenetic tree of *Ch. madrasense*.

### *3.2 Degradation Test*

The results shows in figure (3) that fungi was capability to cause the decay, about weight loss tested which its causes a loss of rate of wood weight reached 2.23% and 2.85% for *O.pseudomollicella* and *Ch. Madrasense* respectively in three months. As a result of exploiting its main chemical components as nutrients from *O.pseudomollicella* and *Ch. madrasense* in there reproduction and growth of fungi [3].

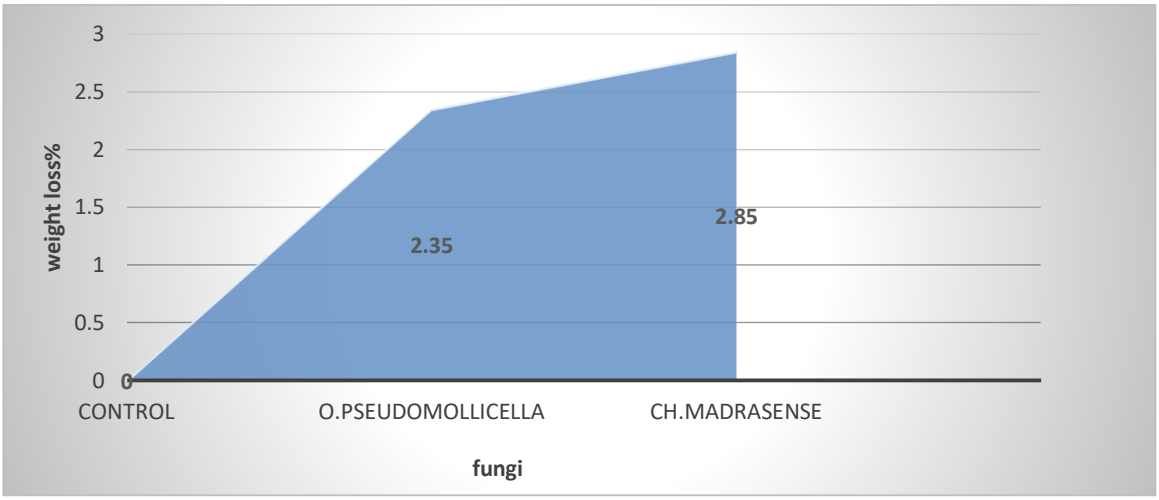


**Figure 3.** Test of degradation after three months of inoculation.

## 4. Conclusions

The results showed that the fungi are caused degradation to the Teak and Red Wood in wood shops and stores as well as which its the first recording in Iraq.

## 5. Acknowledgements

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