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Biotechnological potential of fungi associated to tropical forests of *Quercus*

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The species of the genus *Quercus* are recognized as ecologically dominant in different ecosystems, and commercially valued because of its wood [1-4]. In Mexico it is estimated that there are 174 species of this genus, distributed in temperate and tropical forests [5], even with around 109 endemic species [6]. The tropical forests of *Quercus* in Mexico are subject to strong anthropogenic pressures, such as agriculture and livestock, thus presenting a severe fragmentation [7]. Tree species of this group in native ecosystems associate with a large number of ectomycorrhizal fungi, although currently they are poorly studied [8, 9]. It has been discovered that several species of different genus of ectomycorrhizal fungi have several types of compounds: minerals, vitamins, proteins, amino acids, polysaccharides and some fatty acids among them [10, 11]. Many of these are known by having antimicrobial, antifungal, antiviral, antitumor, anti-inflammatory, antidiabetic, antiangiogenic and antioxidant properties [12, 13]. We have in development a research (CONACYT CB-252431) to recognize the ectomycorrhizal biota associated with *Quercus* species, in pure relicts, based on basidiomes and ectomycorrhizas, in two tropical forests of Mexico, in order to recognize their diversity and also to detect species with economical potential. Currently we have found two dominant *Quercus* species, associated with species of genera of fungi (*Amanita*, *Boletellus*, *Boletus*, *Cantharellus*, *Lactarius*, *Lactifluus*, *Pisolithus*, *Phylloporus*, *Russula*, *Strobilomyces*, *Tomentella*, *Tuber* and *Tylopilus*), which have been reported with some bioactive properties, such as anti-inflammatory, antibacterial, antiviral, anticarcinogenic, antifungal, antioxidant, and cytotoxic properties. Therefore, the tropical forests of *Quercus* in Mexico could be considered as natural reservoirs of fungal species and bioproducts. Sustainable use of some of the fungal species harboured in such relicts would be highly profitable and beneficial for the society. We discuss a list of species which could be subject of rational use and object of many studies aimed at the development of new drugs.

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