

Preface

Dozens of monographs relating to various aspects of mycorrhizal associations have been published over the last five decades or so; among them are works dealing with different edible mycorrhizal fungi, one even within this Soil Biology series, *Edible Mycorrhizal Mushrooms* (Zambonelli and Bonito 2012). Several volumes, written in different languages (e.g., Italian, French, English), have sought to summarize our knowledge concerning truffles or provide an overview of attempts at truffle cultivation. However, not a single one of these works deals specifically with desert truffles—the “stepbrothers” of what are termed the “true” truffles (members of the *Tuberaceae* family). This book is thus the first international monograph devoted to the subject of desert truffles.

Although desert truffles have been known and appreciated at least from the time of the Pharaohs, modern research into this type of truffle, together with associated international publications, was launched only in the late 1970s in Kuwait.

In contrast with the “true” truffles, all of which are members of a single family, and are phylogenetically related among the desert truffles the hypogeous form of life evolved independently several times in different families, mainly within the *Pezizales* order. Some genera are, therefore, phylogenetically closer to above-ground relatives than to other desert truffles.

Desert truffles have been found and described in every desert that has been explored, irrespective of the character of the habitat—cold or hot, in loamy or acidic, sandy or heavy soils. The only common denominator seems to be a limited supply of water.

Oddly enough, although in some arid areas—mainly the Mediterranean basin and the Middle East—they are known and appreciated by local inhabitants; in others they are virtually unacceptable as food and discarded when found. Wherever they are appreciated they command relatively high prices; the highest for any wild mushroom offered in the markets. As is the case for other wild commodities, yields of wild desert truffles are declining, at the same time appreciation for their nutritional value and organoleptic properties is on the rise. Moreover, interest in these truffles is increasing against the background of the search for new food and income sources for remote arid

areas. The earliest reports of successful attempts at cultivation date back only some 20 years, and desert truffle cultivation is only now coming of age.

This volume offers detailed summaries of several aspects of the somewhat underdeveloped field of desert truffle research. Desert truffle taxonomy is undergoing profound changes as molecular methods of phylogenetic research come into their own. Many affiliations have been changed, a number of new genera and new species have been erected, and more changes may be expected as future research focuses on these truffles. Basic research into the mycorrhizal associations of desert truffles has revealed some interesting and unusual properties calling for further study of these underground fungi.

The book is divided into five parts: I, Phylogeny; II, Conditions favoring mycorrhiza formation; III, Distribution; IV, Fruit body attributes; and V, Cultivation. We trust that together they provide an overview of the state of the art regarding all aspects of desert truffles for the benefit of researchers, students, and members of the public with an interest in the subject.

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Reference

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Desert Truffles

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