Chapter 23
Rediscovery and Typification of Amanita From the Cork Groves of Morocco

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ABSTRACT

Objective: The purpose of this work is to study, to rediscover, and to classify the Amanita mushrooms found in the cork oak forests of Morocco. Methods and Results: Surveys were conducted in various re-gions of Morocco (Mamora, Northwest, Rif) allowing for the collection of infor-mation on the Amanita species encountered. In the laboratory, macroscopic and microscopic identification criteria for these species were established. In total, twenty-nine species (29) werwe recorded. Among these, five were not found (Amanita codinae, Amanita eliae, Amanita excelsa, Amanita gemmata, and Amanita porphyria). The remaining twenty-four species (24) are con-sistent with the vegetation formations of Morocco. The systematic position, ecology, edibility, and toxicity risks of all the studied species were discussed. Conclusion and Application of the Research: The results of this study contribute to determining the diversity of the Amanita genus in Morocco highlighting that the Moroccan forest ecosystem still holds many mysteries to uncover.

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INTRODUCTION

Amanita are fungi belonging to the Amanitaceae family (Basidiomycotina): they generally have a ring at the top of the foot, a volva at the base of the foot, free white lamellae, and scales on the cap (Jérôme, 2002).

These elegant, slender, fleshy, terrestrial mushrooms are highly putrescent (their tissues are rich in proteolytic ferments of the rennet group). The cap, easily separable from the stem, is sometimes white, but more often colored (bright red, orange-red, reddish, greenish, pale yellow) (Malençon & Bertault, 1970).

The lamellae, which are generally white, are of two kinds. For example, some comes right up to the foot without fusing to it; white others or lamellae, starts from the periphery and stop about halfway upthe cap; they end obliquely, as if cut by scissors (Deysson et *al.*, 1980).

The development of Amanita begins underground where they appear as small white eggs. Then, the membrane enveloping the fungus, called the volva, partially tears, sometimesremaining at the base of the foot, and can be very friable (Isabelle, 1994).

Amanita are generally mycorrhizal but often not very specific, where all have a mycorrhizal requirement with *Quercus suber* (Abourouh, 2000).

According to previous works (Maire & Werner 1937, Malençon & Bertault 1970, Bertault 1980.) and Nounsi A., 2014, El kholfy and *al*., 2011); Larouz and *al.*, 2012) in Morocco, the genus *Amanita* is represented by 32 species. Eleven of these species have been encountered in the Mamora, 10 in the Middle Atlas, 6 in the Rif and 5 in the Central Plateau (El Assfouri, 2006). Amanites is a very important genus containing some good edibles but above all the most toxic fungi: *Amanita phalloïdes*, *A. verna* and *A. virosa* (Pirot P., 2010).

MATERIALS AND METHODS

To help determine the fungal diversity of Macromycetes in the different regions of Morocco, surveys were carried out in certain areas (Mamora, North-West). Investigations were carried out on various substrates, including *Quercus suber* and various *Eucalyptus* species. In the field, information on the season of basidiocarp appearance and the climatic conditions that characterize the periods of this appearance were noted. Macroscopic identification features are observed with the naked eye and a hand-held magnifying glass. The dimensions of the carpophores and their anatomical parts were measured. Basidiocarp dimensions in cm are determined according to their diameters projected on a horizontal plane. This method consists in expressing the dimensions of basidiomas by the diameter of the imperfect circle drawn

by the outermost part of the cap's periphery (Josserand, 1983). In addition, the appearance of the basidiomata, the color of the cap and hymenophore, the type of hymenophore, the thickness and consistency of the flesh, the ornamentation of the specimens, their odour and their smell were determined. The various criteria were studied on fresh specimens. The information gathered was recorded in situ on the harvesting notebook. In the laboratory, observations of the various parts of the carpophores were made in depth using a binocular magnifying glass. The spore was obtained by depositing mature carpophores on sheets of paper of different colors and on glass slides. The natural color of the spores was determined by comparing the color of the spore with the color of white chalk. According to Gilbert (1927), white chalk is the reference color for white spores. Spore amyloidity is tested by adding a drop of iodized water to a pinch of spore. Macrochemical tests, which may give colored reactions, are carried out on the