

## ON THE PRESENCE OF *Amanita citrina* & *A. muscaria* IN BELGRAD FOREST, ISTANBUL

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### SUMMARY

The identification of the material collected from Belgrad Forest, İstanbul in November 1992, has revealed that the macrofungal flora of this area contains two more *Amanita* species.

Brief descriptions of the species, notes on their localities and photos of fructifications and basidiospores are given in the text.

### ÖZET

Kasım 1992 de Belgrad Ormanı (İstanbul)ndan toplanan materyelin tanımlanması ile bu alanın makrofungus florasının 2 ilave *Amanita* türü içerdiği anlaşılmıştır. Metinde bu türlere ait kısa tanımlar, toplandığı yerlere ait kısa notlar, fruktifikasyon ve bazidiosporlara ait fotoğraflar bulunmaktadır.

**Key words:** *Amanita citrina*, *A. muscaria*, Belgrad Forest, İstanbul.

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## INTRODUCTION

Wild fungi are collected mainly from Belgrad Forest which covers an area of c.5300 hectares and located in the European part of Istanbul. They are collected for consumption generally by local people and it is possible to see them as well as the cultivated ones in some local markets of the city in certain times of the year. On the other hand it is known that wild fungi have been the cause of serious poisonings even loss of life of people in Istanbul. Serious or fatal cases of poisoning seen in autumn in particular are due to the consumption of toxic fungi. Unfortunately the Turkish macrofungal flora is still insufficiently known and we have only limited information on our toxic fungi.

The genus *Amanita* Pers. (*Agaricales*, *Amanitaceae*) is very important as it contains the most toxic and prized edible species. For instance while *Amanita caesarea* (Scop.: Fr.) Pers. is largely consumed either raw or cooked, *A. phalloides* (Vaill.: Fr.) Secr. is the best known toxic species and is responsible for the most fatal cases. Mortality rates are often quoted at 50-95 % but modern methods of treatment have reduced this figure to 20 % in recent years (1).

According to the published floristic studies concerning with the Turkish macrofungal flora 13 species of *Amanita* are recorded so far (2-13). Below are listed species with their localities and vernacular names:

Species	Locality	Vernacular name
<i>Amanita alba</i> Gil. -edible (2)-	Uşak (2)	—
<i>A. caesarea</i> (Scop.: Fr.) Pers. -edible (3, 14)-	Bursa (3) İstanbul (4)	Altın yumurtâ mantarı, İmparator mantarı (14)
<i>A. citrina</i> (Schaeff.) S. F. Gray -nontoxic (14, 15) or toxic (16)	Kastamonu (5) Giresun, Ordu (6)	—
<i>A. codinae</i> (R. Maire) Singer	İçel (13)	—
<i>A. gemmata</i> (Fr.) Gill. -toxic (7)-	Bursa (7)	—
<i>A. muscaria</i> (L.: Fr.) Pers. -toxic and dangerous but rarely fatal (15)-	Ordu (5) Bolu, Kastamonu (6) Bursa (7) ? İstanbul (8)	Deli mantar (9)
<i>A. ovoidea</i> (Bill.: Fr.) Quelet	İçel, Adana (13)	—
<i>A. pantherina</i> (DC.: Fr.) Secr. -toxic, often fatal (15)-	Bolu, Giresun, Ordu Samsun (5)	Köygöçüren (9)

<i>A. phalloides</i> (Vaill.: Fr.) Secr. -deadly toxic (14)-	Ordu (5)	Köygögüren (9)
<i>A. rubescens</i> (Pers.: Fr.) S. F. Gray -toxic when eaten raw or undercooked (1)-	Kastamonu (6) İstanbul (10)	İnci mantarı (9)
<i>A. spissa</i> Fr. ex Kummer -harmless (14)-	Kastamonu (6)	—
<i>A. vaginata</i> (Bull.: Fr.) Vitt. -toxic when eaten raw or undercooked (1)-	İstanbul (10) Elazığ (11) Malatya (12)	Kılıçkını mantarı (9) Göbelek (11)
<i>A. verna</i> (Bull.: Fr.) Pers. ex Vitt. -deadly toxic (15)-	Çorum (2) Trabzon (5) İstanbul (10)	İlkbahar mantarı (9)

Including one insufficient record (8) there are 5 *Amanita* species of which 4 of them are hitherto known only from Belgrad Forest in Istanbul (4, 10). Except *A. verna* all of them are edible either raw or cooked.

During a botanical excursion in Belgrad Forest in November 1992 two *Amanita* species namely *A. citrina* and *A. muscaria*, previously not recorded from this area were determined.

The aim of this paper is to give information about the existence of two more *Amanita* species of which one is highly toxic in Belgrad Forest.

## MATERIAL and METHODS

Some of the characteristics of these specimens were noted during collecting and their photographs were taken. They were identified from several sources (15, 17, 18, 19). Specimens dried as rapidly as possible with the help of a constant flow of warm air (c.40°C) and after being disinfested they were stored in polythene bags in the Herbarium of the Faculty of Pharmacy (ISTE) in separate cupboards with special numbers for the fungi. Entire fructifications were also preserved in 70 % alcohol. The spores taken from the sporeprints were studied and their measurements were taken in Melzer's Iodine solution (15). Photographs of the spores were taken using with Olympus BHS Microscope and Semi-Automatic Exposure Photomicrographic System.

## RESULTS

Short descriptions of these species based on the collected specimens and floristic publications together with the photographs of fructifications and basidiospores are given below.

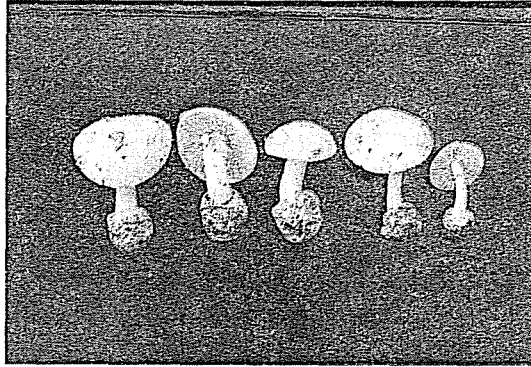


Photo-1: *Amanita citrina* (fructification)

Cap sulphur yellow (20) with irregular patches of velar remains (smooth without remains in *A. verna*) 5-10 cm in diameter, hemispherical then expanded; gills and stipe white, the base of the stipe is swollen and the volva which is short and even (not large and irregularly bag-shaped as in *A. verna*). Fresh fructifications have the odour of raw potatoes. Spores sub-globose, 8-9 x 8-8.5  $\mu\text{m}$ , amyloid (Photo-1a).

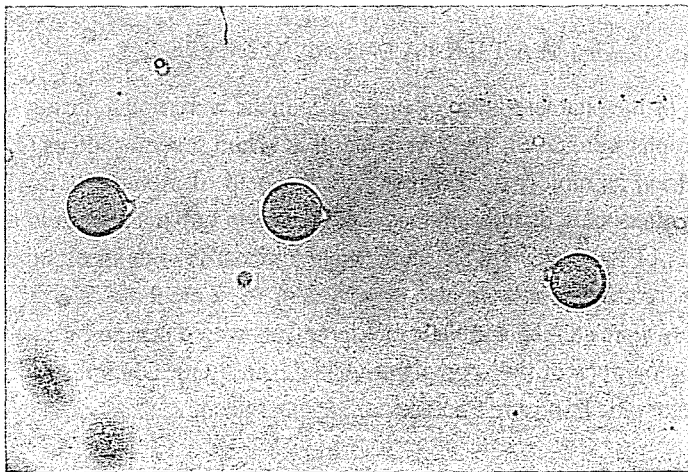


Photo-1a: *A. citrina* (basidiospore)

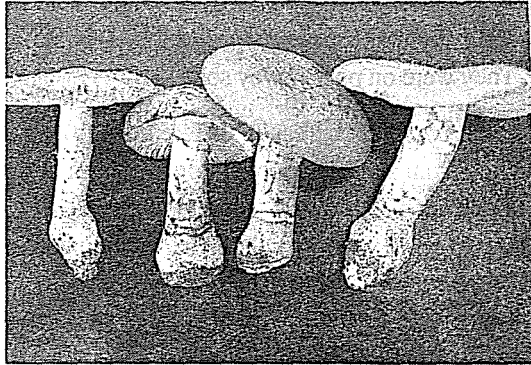


Photo-2: *Amanita muscaria* (fructification)

Cap red (20) to scarlet (20) with white warts or patches, 6-25 cm in diameter, hemispherical to convex, finally  $\pm$  expanded, fading or washing out to orange (20) (edible *A. caesarea* has never bear warts or patches on its cap); gills, stipe (up to 25 cm) and partial veil white (yellow in *A. caesarea*), volva with several concentric,  $\pm$  warty rings. Spores oblong, 9-10 x 7-8  $\mu\text{m}$ , non-amyloid (Photo-2a).

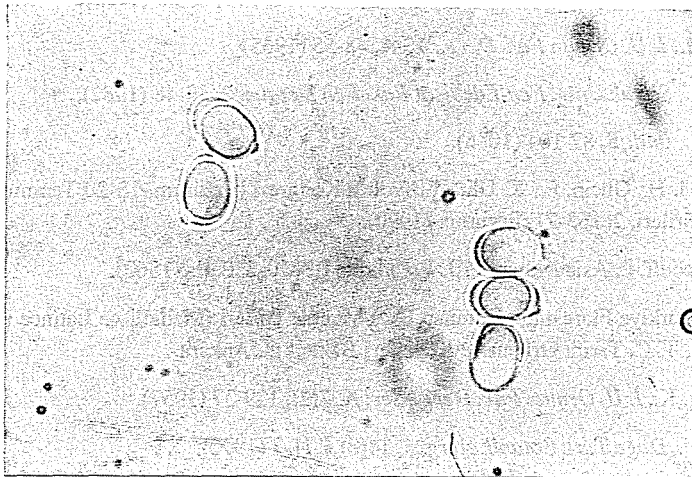


Photo-2a: *A. muscaria* (basidiospore)

Above mentioned fungi were collected from the same locality: A2 (E) Istanbul: Belgrad Forest, Burunsuz district, 190 m, 15.11.1992, K.Alpınar, 240 and 241 (*A. citrina* and *A. muscaria* respectively).

They were located under *Pinus pinaster* Ait. The other associated plants are: *Pteridium aquilinum* (L.) Kuhn, *Cistus salviifolius* L., *Arbutus unedo* L. and *Erica manipuliiflora* Salisb. They were on poor clayey soil.

Although the toxic *Amanitas* are easily differentiated from the edible ones with the coloured cap changing from sulphur yellow through shades of orange to red or occasionally olive brown misidentification not uncommon in juvenile stage. So the edible species of *Amanita* have to be collected by the experienced people otherwise mistakes that may lead serious or fatal cases may be inevitable with them.

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