# ARTICLES AND NOTES

## MUSHROOM POISONINGS IN SCOTLAND

**Alan P. Bennell & Roy Watling**
Royal Botanic Garden, Edinburgh

There was an early start to the 1982 mushroom season in Scotland, *Agaricus xanthodermus* Genevier being reported during the last week of June. Apart from a minor disruption in early August following a protracted dry spell, and the impact of a single night's savage frost in late November, basidiomes have continued to appear and are still doing so in SE Scotland at the time of writing (1 Dec.). In a year of such prolific fruiting, the Poisons Unit at Edinburgh Royal Infirmary have dealt with some seventy enquiries relating to mushrooms. Many of these result from attempted recreational drug use of the fungi concerned, reflecting a national trend, but one of us (R.W.) has also been involved with instances of poisoning in a diversity of domestic animals, including horses, sheep, cattle and dogs.

For most of these cases specimens are little more than scraps of basidiomes, and there is little accompanying information. However, in one noteworthy incident good material together with some case notes were available. On 6 June specimens were received from a major Scottish hospital by one of us (A.P.B.) and identified as *Panaeolus subbalteatus* (Berk. & Br.) Sacc. The sequence of events of this mild poisoning is outlined below.

Gathered early that morning from freshly manured ground more than 20 basidiomes had been ingested by a 34 year old man. In something of a gourmet breakfast they had been sautéed in garlic and white wine and served heaped over toast. At 8.45 am they were pronounced: 'some of the most delicious mushrooms that I have had'. However, within 40 minutes sensations of detachment from conversation and an inability to take in the surroundings became apparent. The man promptly reported to hospital, where at 10.00 am he described himself as 'far away, and incapable of following speech at normal speeds'. Although worried about his condition and its possible development he became elated.

There followed undoubtedly the least pleasant experience of his day when gastric lavage was carried out. In spite of his high spirits he retained sufficient presence of mind to refuse insertion of a second tube when the first became blocked, with the stomach pumping only half complete. By the time he left the hospital at about 11.30 am the patient had become frivolous, experiencing some sexual stimulation and a great urge to laugh and smile. After an afternoon's rest in bed the elation waned during the evening. The prompt stomach pumping obviously reduced the hallucinogenic and toxic impact of the fungus. No nausea was experienced at any stage, unlike the previous reported British poisoning involving this species (Watling, 1977).

The unmotivated hilarity generated, and the timings of the symptoms described are typical of psilocybin. This hallucinogenic principle is known to occur in *P. subbalteatus*, and has led to use of the fungus as a recreational psychoactive drug in North America.

For some time at Edinburgh, we have been collecting information from all proven or suspected mushroom poisonings, particularly those occurring in Scotland. However, any records of British poisonings known to readers of the

Bulletin would be of great interest, and should be sent to Roy Watling at the Royal Botanic Garden, Edinburgh. An on-line program for the identification of toxic agarics has been described by Margot, Farquhar & Watling (1984).

**References**

MARGOT, P., FARQUHAR, G. & WATLING, R. (1984). Identification of toxic mushrooms and toadstools (Agarics) – an on-line identification program. In *Databases in Systematics* (eds. R. Allkin & F.A. Bisby), Systematics Association Special Volume. London and New York: Academic Press.

WATLING, R. (1977). *Mycopathologia*, **61**, 187-190.

# RELATIONSHIP OF LAG PHASE DURATION TO THE TEXTURE AND OCCURRENCE OF WOOD-DECAYING FUNGI

**N.S. Bisht & N.S.K. Harsh**
Mycology Research Laboratory, Botany Department,
Kumaun University, Naini Tal, India

The wood-decaying fungi studied belong to the order Aphyllophorales. All these fungi are perennial in that their vegetative stage can live indefinitely as long as the food base is not exhausted. The development of fruit bodies is restricted to a certain period of the year and this varies from species to species. There is a time gap between the onset of favourable conditions and the appearance of mature fruit bodies. This gap was called the lag phase by Wilkins & Harris (1946). It differs from species to species and is governed by climatic factors, such as temperature and humidity. Among other ecological factors that affect the growth of fungi, and hence probably the lag phase duration are substrate, altitude, latitude, density of the stand and biotic factors. Harsh & Bisht (1982) started an ecological study of wood-decaying fungi in the Kumaun region. In the present paper the authors have attempted to establish a relationship between environmental factors and the lag phase duration, texture and occurrence of the fruit bodies of wood-decaying fungi.

## The study area

The study area lies between 29°17′55″ and 29°28′47″ North latitudes and 79°15′30″ and 79°55′45″ East longitudes and in the altitudinal range 1500 to 2650m. The altitude provides a temperate environment, although the latitude is in the tropics. The climate is greatly influenced by the local monsoon: the rainfall in the area varied from 1500 to 2500 mm annually, about 75% of which fell during the rainy season (June to September). Summer months were moderately hot with temperatures of up to 30°C in May and June. The winters were cold, with a minimum temperature in January of -5°C. The relative humidity varied between 30.8% (November) and 56.2% (August). However, this often increased to 100% on individual days in the rainy season. Snowfall was moderate and snow remained on the ground from December to February at the higher elevations. The seasonal variations in the fungal population were more or less similar at every station and any differences were due to differences in vegetation.

## Materials and methods

For the present study 60 of the common annual wood-decaying fungi were selected. As the perennial forms were found throughout the year and in most of