IV. Screening Tests For Toxins To Confirm The Edible Nature Of Agaricus trisulphuratus, Rhodocybe subgliva And Agrocybe praecox

INTRODUCTION

Although the mushrooms, Agaricus trisulphuratus Berk., Rhodocybe subgliva (Berk & Br.) Pegler and Agrocybe praecox (Pers. ex. Fr.) Payod were found to be edible and reported to be consumed by the rural population in West Bengal, screening tests for toxins specially cyclopeptides have to be performed before the test fungi could be considered safe for human consumption. Among the major groups of toxins detected in mushrooms, cyclopeptides consisting of amatoxins and phallotoxins are the most deadly (Lincoff and Mitchell, 1977). Standards are now available for the analysis and detection of this group of toxins (Wieland and Wieland, 1972; Palyza and Kulhanek, 1970). In this investigation, paper chromatographic method (Block et al., 1955) has been followed to confirm the absence or presence of the toxins in the test-fungi.

MATERIALS AND METHODS

Procedure

The fresh mycelial mats of Agaricus trisulphuratus, Rhodocybe subgliva and Agrocybe praecox (2 g each) were minced
separately but not mashed and covered with several volumes of
methanol in a beaker. The tissue was extracted by heating the
mixture to boiling and keeping it hot for 2 mins. During the
heating the mixture was stirred and the tissue was pressed
with a stirring rod. The extracted tissue was then separated
by centrifuging. The tissue was discarded, and the methanol
extract was evaporated to dryness on a steam bath. The residue was
then dissolved in 1.0 ml of methanol.

The concentrated methanol solution was then used to run
a chromatogram, using a strip of filter paper (Whatman No.1;
1 x 10")). A mixture of methylethyl ketone, acetone, water, and
butanol (20 : 6 : 5 : 1 v/v) was used as the chromatographic
solvent. After 40 mins, the strip was removed and hung by the
top to dry. It was then sprayed lightly with a solution of 1.0% cinnamaldehyde in methanol, allowed to dry, and suspended in a
stoppered tube above concentrated hydrochloric acid. The
appearance of one or more violet - or blue - coloured spots on
a paper indicates the presence of amanitin and phalloidin
toxins.

The experiment was repeated substituting the solvent
mentioned above by a mixture of butanone, acetone, and water
(30:3:5 v/v) which was reported to allow separation of nearly all the phytotoxins (Wieland and Wieland, 1972).

RESULTS AND DISCUSSION

In both the experiments conducted, no violet or blue coloured spots appeared in case of all the three test fungi indicating the absence of amanitin and phalloidin toxins.

Therefore, it may be concluded that the test-fungi, *A. trisulphuratus*, *Rhodocybe subaliva* and *A. roscybe praecox* are safe for human consumption and would present no toxic hazard.

REFERENCES

