

Title Chemical and analytical screening of some edible mushrooms
Author Uppuluri V. Mallavadhani, Akella V.S. Sudhakar, K.V.S. Satyanarayana, Anita Mahapatra, Wenkui Li
 and Richard B. vanBreemen
Citation Food Chemistry Volume 95, Issue 1, March 2006, Pages 58-64
Keyword Mushrooms; *Volvariella volvacea*; *Agaricus bisporus*; *Calocybe indica*; Nicotinic acid

Abstract

Fractionation of extracts of the edible mushroom, *Volvariella volvacea*, led to the isolation of two heterocyclic carboxylic acids, namely pyridine-3-carboxylic acid [nicotinic acid, (5)] and pyrazole-3(5)-carboxylic acid (6) and the four steroidal metabolites ergosterol (1), 5-dihydroergosterol (2), ergosterol peroxide (3), cerevisterol (4). Significantly, compound (6) was identified for the first time, to our knowledge, in the mushroom kingdom and is of taxonomic significance. Compounds (2–4) were isolated for the first time from the *Volvariella* genus. In view of the structural similarity of compound (6) to pyrazole-3-carboxylic acids, which act as agonists for nicotinic acid receptors, the levels of compounds (5) and (6) were estimated for the first time using HPTLC in *V. volvacea* and two other edible mushrooms, namely *Agaricus bisporus* and *Calocybe indica*. Significant levels of compound (5) were found in *C. indica*, and compound (6) was found in abundance in *A. bisporus*. Correlations are suggested between the occurrence of these compounds in mushrooms and consumption as well as beneficial health effects of this food.