

PROBING THE MEDICINAL VALUE AND ANTIOXIDANT ACTIVITY OF THE WILD MUSHROOM *ATHURU HATHU* (*AGARICUS FULVOALBUS*) FROM THE SINGHARAJA RAIN FOREST

Nimshi Fernando¹, Pahan I. Godakumbura^{1*}, M.A.B. Prashantha¹ and Preeni Fernando²

¹Department of Chemistry, University of Sri Jayewardenepura, Sri Lanka

²Department of Botany, University of Sri Jayewardenepura, Sri Lanka

*pahanig@mail.com

Consumption of mushrooms as a part of the diet has increased remarkably due to their significant role in human health and nutrition. In traditional medicine throughout the world, mushrooms have been used due to its valuable medicinal properties. Since edible *Agaricus* species are imbued with high commercial and medicinal value, the present study is done on *Athuru hathu* (*Agaricus fulvoalbus*), which is a seasonal wild mushroom found in the Sinharaja rain forest, Sri Lanka. *Athuru hathu* is popular among the community living around Sinharaja rain forest, due its great flavour and texture similar to pork and ability to be stored for a considerable period of time without any preservative.

This, the first research on wild mushrooms found in the Sinharaja rain forest, study has uncovered phytochemicals, antioxidant activity, antibacterial activity and antifungal activity of *Athuru hathu*. The phytochemicals present in this mushroom were screened as these directly affect the human health. Due to the evidence of its comparatively long shelf-life, the antibacterial activity against Gram negative bacteria and Gram positive bacteria was screened using the well diffusion method and micro dilution plate method. Antifungal activity was screened using the poisoned food technique and antioxidant activity was analyzed using the DPPH assay because of the importance of antioxidants to human health as it draws the attention of the public.

Phytochemical screening of the methanol extract detected the presence of alkaloids, unsaturated sterols, flavonoids, tannins and polyphenols while saponins were absent. Screening for the antibacterial activity of the methanol extract showed inhibition zones for *Staphylococcus aureus*, *Bacillus subtilis*, *Escherichia coli* and *Ralstonia solanacearum* and hexane extract showed inhibition zones for *S. aureus* and *B. subtilis*. The minimum inhibitory concentrations of the methanol extract ranged from 0.069 to 0.617 mg mL⁻¹. Antifungal activity was determined using the poisoned food technique and methanol extract showed an inhibition of the growth of *Rhizopus stolonifer*, *Aspergillus niger*, *Aspergillus flavus* and *Penicillium sp.* Antioxidant activity of the methanol extract showed a good antioxidant activity than that of the reported values of other mushrooms.

In addition to its unique taste and longer shelf-life, the results show that the wild mushroom, *Athuru hathu* has a medicinal value to the consumer. Among them, antibacterial, antifungal, and antioxidant activities are of particular interest. Therefore, *Athuru hathu* can be used as a potential functional food substrate and as a source for the development of new drugs.