

**Title:** Antioxidant, antibacterial and cytotoxic activities of various extracts of *Thysanolya maxima* (Roxb.) Kuntze available in Bangladesh.

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The objective of the study was to evaluate the presence of different phytoconstituents and investigate *in vitro* bioactivities of pet ether extract, chloroform extract and methanol extract of *Thysanolaena maxima* available in Bangladesh. Phytochemical screening was conducted using specific standard procedure. Antioxidant activity of the extracts was evaluated using DPPH radical scavenging assay, determination of total phenolic content, determination of total flavonoid content and reducing power assay. Antibacterial and cytotoxic activities were investigated using disc diffusion method and brine shrimp lethality bioassay respectively. The methanol extract of *T. maxima* showed the highest DPPH radical scavenging activity and highest phenolic content (IC<sub>50</sub> value for DPPH is 37.76 µg/ml and total phenolic content is 74.39±2.87 in mg/g, Gallic acid equivalents) compared to the pet ether and chloroform extract. On the other hand, chloroform extract possesses maximum flavonoid content (81±7.542 in mg/g, Quercetin equivalents) and highest reducing power compared to other extracts. In antibacterial study, all the extracts showed mild to moderate activity against 5 gram positive and 6 gram negative bacteria with zone of inhibition ranging from 7 mm to 15 mm. In Brine shrimp lethality bioassay, the LC<sub>50</sub> values for pet ether, chloroform and methanol extract were 1351.9 µg/ml, 975.61 µg/ml and 1136.74 µg/ml respectively which revealed very weak cytotoxic potential of the extracts. The results indicate that *T. maxima* could be a very potent source of natural radical scavenger and antimicrobial agents. Further studies are needed to be conducted to identify the compounds responsible for producing such bioactivities.

### **Biography**

Nazia Hoque is a PhD student of Centre of Natural Product Research, Department of Pharmacy, Jahangirnagar University, Dhaka, Bangladesh. She has completed her MS in Pharmaceutical science and B. Pharm from the same institution. She is now working as a senior Lecturer in the Department of Pharmacy, East West University, Dhaka, Bangladesh.