

RESEARCH ARTICLE

# CYTOTOXIC POTENTIAL OF THE ETHANOLIC EXTRACT OF *LEUCAS ASPERA*

Nipa Chowdhury<sup>1\*</sup>, Talha Bin Emran<sup>1</sup>, Dibyajyoti Saha<sup>1</sup>, Md. Atiar Rahman<sup>2</sup> and S.M. Zahid Hosen<sup>1</sup>

<sup>1</sup>Department of Pharmacy, BGC Trust University, Chittagong, Bangladesh

<sup>2</sup>Department of Biochemistry and Molecular Biology, University of Chittagong, Chittagong, Bangladesh

\*E-mails: nipa\_chowdhury\_nip@yahoo.com, talhabmb@gmail.com

Tel.: +88-01938198799.

Received: March 25, 2012 / Revised: June 28, 2012 / Accepted: June 29, 2012

The cytotoxic properties of ethanolic extract of *Leucas aspera* (Family-Lamiaceae) has been investigated in the present study. The cytotoxic potential of the *L. aspera* ethanolic extract was assessed by brine shrimp lethality bioassay method. Phytochemical study was done through conducting preliminary phytochemical group tests. In brine shrimp lethality bioassay, LC<sub>50</sub> value of *L. aspera* ethanolic extract was found 181.68 µg/ml with 95% confidence limit where the lower and upper limits were 125.12 and 265.96 µg/ml respectively, which indicated that the extract has promising cytotoxic properties.

**Key words:** *Leucas aspera*, Cytotoxicity, Lamiaceae, Brine shrimp lethality bioassay.

## INTRODUCTION

Cytotoxicity is the quality of being toxic to cells. Among many recent advances in cancer chemotherapy, phytochemicals play an important role as cancer chemotherapeutic drugs. A search for new anticancer drugs has taken many different approaches. The brine shrimp lethality bioassay is efficient, rapid and inexpensive tests that require only a relatively small amount of samples. The technique is also easily mastered and costs little (Meyer *et al* 1982); therefore, had been successively employed for *in vivo* lethality bioassay-guide fractionation of active cytotoxic and antitumor agents such as trilobacin from the bark of *Asimina triloba* (Zhao *et al* 1992) and ent-kaur-16-en-19-oic acid from *Elaeoselinum foetidum* (Mongelli *et al* 2002).

*Leucas aspera* locally known as Thumbai, Goma madhupati or Dronapushpi is a common aromatic annual herb with opposite decussate, linear lanceolate leaves and white ligulate flowers and belongs to family Lamiaceae (Figure 1). It is found in Africa, Asia, Pacific Islands, South America and China. In Bangladesh, it

grows in Dhaka, Sylhet, Comilla, Chittagong and Chittagong Hill Tracts. *Leucas aspera* is an important medicinal plant in indigenous system of medicine.



Fig. 1. Photograph of *Leucas aspera*

It has various ethnomedicinal values as various traditional communities and find diverse medicinal properties. It is used as antipyretic, antioxidant, antimicrobial, insecticide (Prajapati *et al* 2010). Leaves are useful in chronic rheumatism; their juice is antibacterial and extensively applied in psoriasis, scabies and