**ABSTRACT**

Leucas aspera is a medicinal plant well known for its traditional uses such as antipyretic and insecticide. It is commonly known as Thumbai or Thumba and distributed throughout India from the Himalayas down to Srilanka. Soil salinity is an adverse environmental problem affecting agriculture and over 800 million hectares of the world land is affected by salt stress. To study the effect of salt stress on L. aspera, one month old seedlings were subjected to salt stress. The study showed a significant reduction of chlorophyll content after 72 hours of treatment with 150 mM and higher salt concentrations. Vacuolar Na+/H+ exchanger (NHX1) is one of the key gene playing a vital role in salt tolerance. Bioinformatic tools were used to identify conserved regions of NHX1 and to design degenerate primers. The NHX1 gene homologue was isolated and sequenced from L. aspera and submitted to NCBI (National Center for Biotechnology Information) database. The real time PCR based expression study showed significant upregulated expression of NHX1 after the plant subjected to salt stress up to 12 hours but a reduction in expression was observed after 24 hours.