**Abstract**

Leucas aspera is well known for its traditional uses as antipyretic and insecticide. It is commonly known as “Thumbai” and distributed throughout India from the Himalayas down to Srilanka. This plant possesses immense medicinal properties such as antifungal, antioxidant, anti-inflammatory, antimicrobial, antinociceptive and cytotoxic activity. Soil salinity is a very important issue affecting agriculture and over 800 million hectares of the world land are affected by salt stress. As Leucas aspera plant distributed throughout India, study on salinity tolerance of this plant may give more insights on abiotic stress research. The effect on photosynthesis can be gauged from the effect on the photosynthetic pigments and salinity stress significantly affected the chlorophyll content. In this study, the effect of salt stress on total chlorophyll content was analysed. The plant was treated with 150 mM NaCl and total chlorophyll content was estimated at 0 hrs, 12 hrs, 24 hrs, 48 hrs, 72 hrs and 120 hrs. We also estimated total chlorophyll content after three days with different salt treatments ranging 50 mM, 100 mM, 150 mM, 200 mM, 250 mM and 300 mM. The chlorophyll content significantly reduced after 72 hrs of 150 mM and higher salt concentrations. The chlorophyll content was not significantly affected up to 48 hrs in all salt concentrations analysed.