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## Short Communication

# Diversity and species composition of Bryophytes at Simhachalam Hills, Visakhapatnam, Eastern Ghats of India

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**Abstract:** Bryophytes are transitional plants between water and land which prefers to grow in moist and cool conditions. Very little information was available on the Bryophytes of North Coastal Andhra Pradesh. Present communication deals with the species composition and distribution of Bryophytes at Simhachalam hills, Visakhapatnam. Quantitative data was collected by using 0.25x0.25 M quadrate and 60 quadrate samples were collected during January to December 2013. A total of 6 genera and 9 species were recorded in this study with maximum density for *Polytrichum densiflorum* and minimum density for the species *Plagiochasma rupestre.* Environmental parameters of the study site also discussed.
**Keywords**: Species composition, Bryophytes, Simhachalam Hills, Eastern Ghats of India.

## INTRODUCTION

Bryophytes are lower group of plants which herbaceous that grow as mats or cushions on rocks, or as epiphytes on the trunks and leaves of forest trees. These are the first non-vascular land plants on the earth which prefers to grow in moist and wet conditions. These groups of Plants are ecologically and economically important for several aspects [1-4]. Some investigators [5-7] studied the distribution and ecological studies of bryophytes in the Eastern Ghats of India particularly along the north coastal zone of the Andhra Pradesh. In the present study an attempt was made to study the distribution of bryophytes in the Simhachalam Hills, Visakhapatnam, Eastern Ghats of India.

## MATERIAL AND METHODS

Simhachalam is one of the important pilgrim spots in Andhra Pradesh located in Visakhapatnam city. Simhachalam hills situated at latitudes of 17˚.12′and longitudes 18˚ 42′ in the east coast of India. Hilly terrain harbors the number of woody angiosperms including several creepers and climbers. These angiosperms provide the shelter, growth and development of many bryophytes and Pteridophytes of this region. Cool and wet conditions through the perennial streams, shelter from the forest trees favor the growth of some bryophytic flora in this region. Data on environmental features was collected from the Cyclone warning centre, Visakhapatnam. 0.25X 0.25M quadrate was used for collection of data on frequency, density and abundance of bryophytes during three seasons from January to December 2012. In each season 20 quadrate samples and a total of 60 quadrate samples were collected during the period of this study. Frequency, density and abundance of individual species were calculated by using the formulas[ 8, 9].

## RESULTS AND DISCUSSION

During the period of this study temperature varied from 19.5 to 34.5˚C and humidity varied from 58 to 96. Moderate to heavy rain fall was recorded during the monsoon and early winter seasons. Moderate temperature, high humidity and moist and wet conditions throughout the year favours the growth and development of bryophytes and Pteridophytes in this region. Table 1 shows the total number of plant species present in the Simhachalam hills. In this present study a total of 9 species of bryophytes were recorded and these species are belonging to six genera and six families. Phytosociological attributes on various species of Bryophytes were presented in the Table.2. Higher frequency values were reported for the species *Polytrichum densiflorum and Polytrichum alpinum while* lower values were obtained for the species *Plagiochasma rupestre.* And density, abundance values for different species of Bryophytes in the study area were similar with frequency values. Most of the terrain regions was covered by the species of *Polytrichum densiflorum.* Rocks, walls and other structures near temple surroundings was inhabitated by the species of bryophytes and with few species of pteridophytes. Bryophytes are lower of group of plants and utilized by the tribal people in the hilly regions for several ailments. *Marchantia polymorpha* is used as medicine to treat boils and abscesses and *Riccia discolor* is applied to treat skin diseases. Spagnum commonly known as peat moss and used as storage material as it has special cells to store water. According to Chinese traditional medicine, nearly 40 kinds of bryophytes used to treat cardiovascular system, bronchitis and other skin diseases.

**-Table 1: Species of Bryophytes occur in Simhachalam Hill, Visakhapatnam, Eastern Ghats of India**

| S.No | Name of the plant | Family |
|---|---|---|
| 1 | *Funaria hygrometrica* | Funariaceae |
| 2 | *Funaria leptopoda* | Funariaceae |
| 3 | *Marchantia polymorpha* | Marchantiaceae |
| 4 | *Plagiochasma rupestre* | Aytoniaceae |
| 5 | *Polytrichum alpinum* | Polytrichaceae |
| 6 | *Polytrichum densiflorum* | Polytrichaceae |
| 7 | *Riccia discolor* | Ricciaceae |
| 8 | *Riccia fluitans* | Ricciaceae |
| 9 | *Spagnum cymbifolium* | Spagnaceae |

**Table- 2: Phytosociological attributes on Bryophytes occurs at Simhachalam Hill, Eastern Ghats of India**

| S.No | Name of the species | Frequency | Density | Abundance |
|---|---|---|---|---|
| 1 | *Funaria hygrometrica* | 76 | 5.6 | 6.7 |
| 2 | *Funaria leptopoda* | 71 | 5.1 | 5.6 |
| 3 | *Marchantia polymorpha* | 72 | 5.2 | 5.9 |
| 4 | *Plagiochasma rupestre* | 38 | 2.5 | 2.8 |
| 5 | *Polytrichum alpinum* | 79 | 5.8 | 6.9 |
| 6 | *Polytrichum densiflorum* | 82 | 6.1 | 7.0 |
| 7 | *Riccia discolor* | 75 | 5.5 | 6.6 |
| 8 | *Riccia fluitans* | 78 | 5.7 | 6.7 |
| 9 | *Spagnum cymbifolium* | 69 | 5.1 | 5.8 |

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