

Fungi in Sri Lankan Ecosystems: A Review of Current Knowledge, and Future Directions

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Fungi are an incredible source that can be used for the economic development of developing countries like Sri Lanka to achieve the United Nation's Sustainable Development Goals. The utilization of fungal resources towards economic development is considerably less because fungi are one of the groups that have been poorly investigated in Sri Lanka. This study aimed to critically evaluate the knowledge gap of fungal studies in Sri Lanka by considering the status of the South Asian region, the Asian region and the World. Therefore, local, regional and world literature related to fungal studies were collected. Data collection was done by using online available sources, visiting resource places as well as contacting resource persons. Then, the collected 1142 different types of literature documents were referred and classified mainly under basic fungal biological studies and applied fungal studies by considering the areas of studies available. After that, necessary information from the literature of each category was extracted and analyzed the gap concerning the world status through the literature to identify new research opportunities of mycology in Sri Lanka. At present global mycology is in the status of identifying and introducing new fungal divisions, classes, orders and new families by using molecular techniques such as quantitative PCR techniques, DNA barcoding, probe development and effective amplification techniques. The global estimate is about 2.2 to 3.8 million fungal species and out of those 144,000 species have been already named and classified. Thus, over 93% of species are currently not explored and are unknown to science. Currently, the Asian region is the pioneer for fungal discovery. In 2017, 35% of new fungal species were discovered in the Asian region which is the highest fungal discovery percentage among all the regions in the World. Findings of this study showed that Sri Lanka is far behind in the World and the Asian region as approximately 3000 fungal species have been identified out of estimated 25,000 native fungal species. The highest knowledge gap is exhibited in the area of fungal taxonomic research in Sri Lanka. There is a great possibility of implementing fungal research in Sri Lanka. However, collaborative efforts of scientists of different fields are needed with financial support to reveal the fungal resources to be utilized in the economic development of the Island.

Keywords: Mycological studies; Fungal diversity; Sri Lanka; Knowledge gap