RESEARCH ARTICLE

SEASONAL PROFILE OF SOIL SPORE BANK OF FERNS IN A SEMI-NATURAL FOREST OF HOOGHLY DISTRICT, WEST BENGAL, INDIA AND ITS IMPLICATION IN CONSERVATION

Madhuparna Hore[1], Aninda Mandal[2], Subikash Biswas[1], Suvendu Dey[1], Jayita Biswas[1], Mithun Biswas[1] and Sudha Gupta[1]*

[1] Department of Botany, Pteridology and Palaeobotany Section, University of Kalyani, Kalyani 741235, West Bengal, India
[2] Department of Botany, A. B. N. Seal College, Cooch Behar 736101, West Bengal, India
Email: sudhaguptain@gmail.com

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Abstract: The vertical structures of live and total fern spore banks were studied during summer, rainy, and winter seasons in a semi-natural forest situated at Mankundu region (22.885877, 88.391903 and 22.848333, 88.342603) of Hooghly District, West Bengal, India. A reservoir of vertically distributed live fern spore bank (LFSB) is established in the region. However, not all the spores present in soil samples could retain their viability for germination to establish gametophytic generation and subsequently sporophyte formation. The best reservoirs are 0-5 cm soil depth in summer and rainy seasons; while, 5-10 cm in winter. The sporophytic plants developed from gametophytes through *in vitro* soil culturing have adapted successfully in natural environment, and fulfilled the objective for establishing fern conservation through natural soil spore bank study.

Keywords: Mankundu, Spore germination, Prothallial development, Sporophytic generation, *Ex situ* conservation

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*Corresponding Author