CHAPTER-VI
CONCLUSION
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In the present investigation, work done may systematically be summarized and concluded as follows:

1. Spores surface sterilized with Sodium hypochlorite solution (4% active Chlorine) showed better germination percentage than 0.1% Mercuric Chloride. The best response of surface sterilant’s percentage and time period for *Dipteris wallichii* (R. Br.) T. Moore was observed to be 45% Sodium hypochlorite solution for 30 mins, for *Lygodium circinatum* (Burm.) Sw. 35% Sodium hypochlorite solution for 25 mins, for *Microlepia speluncae* (L.) T. Moore 32% Sodium hypochlorite solution for 20 mins and that of *Polypodium hesperium* Maxon 30% Sodium hypochlorite solution for 25 mins (Table 3.6).

2. There was germination of spores of all the four plants under study in MS basal medium i.e. without sucrose and hormone supplementation. Maximum germination percentage of spores of all the studied plants was observed in MS + 0.0 mg/L Sucrose + 0.0 mg/L IAA i.e. MS₀ for *D. wallichii* (50%, Table 4.1D), MS₁ for *L. circinatum* (75%, Table 4.1L), MS₂ for *M. speluncae* (75%, Table 4.1M) and MS₃ for *P. hesperium* (70%, Table 4.1P).

3. Sporophytic bodies did not develop from all the germinated spores. It was lowest in *D. wallichii* i.e. 10% of the germinated spores developed into Sporophytes and observed to be preceded by *L. circinatum* (20%), *M. speluncae* (25%) and *P. hesperium* (30%).

4. The time period for spore germination (i.e. number of days required) was observed to be different for all the studied plants from the day of inoculation. It was 45 days in *D. wallichii*, 32 days in *L. circinatum*, 28 days in *M. speluncae* and 30 days in *P. hesperium*. 
5. There was germination of spores and further cell proliferation to prothallus and sporophytic development, when supplemented with plant growth regulators on MS medium.

6. The optimum dose of IAA concentration for culture of prothallus (gametophyte) in MS medium was determined by recording the growth of prothallus in fresh weight (mg) for ten numbers of prothallus after 3 months. The highest fresh weight of the prothallus was observed in *L. circinatum* (85.75 mg in 2.5 mg/L IAA, Table 4.2c), followed by *D. wallichii* (80.75 mg in 0.15 mg/L IAA, Table 4.2d), *M. speluncae* (78.50 mg in 0.05 mg/L IAA, Table 4.2a) and *P. hesperium* (74.60 mg in 0.10 mg/L IAA, Table 4.2b).

7. Various combinations of the plant growth regulators like Indole-3-acetic acid (IAA), Indole-3-butyric acid (IBA) and Kinetin (KIN) and a control were taken to study the combined action of IAA, KIN and IBA on the young sporophytic bodies developed. Growth of sporophytes in terms of fresh weight and dry weight was best after 6 months. Highest fresh weight of the sporophytes was observed in *P. hesperium* (i.e. 3.750 ± 0.17g) in MSp 16, Table 4.3p; followed by *M. speluncae* (3.430 ± 0.25g) in MSm 17, Table 4.3m; *L. circinatum* (i.e. 3.425 ± 0.35g) in MSl 20, Table 4.3l and *D. wallichii* (3.125 ± 0.11g) in MSD 17, Table 4.3d.

8. IBA was observed to be good for induction of rhizoids. Heights of the Sporophytes developed for all the plants under study were measured in random. It was observed to be highest in *M. speluncae* (9.5 cm, Table 4.4a), followed by *P. hesperium* (9.0 cm, Table 4.4p), *L. circinatum* (8.5 cm, Table 4.4l) and *D. wallichii* (7.2 cm, Table 4.4d).

9. Successful propagation of *D. wallichii*, *L. circinatum*, *M. speluncae* and *P. hesperium* in the standardized MS medium supplemented with different growth regulators like Indole-3-acetic acid (IAA), Indole-3-butyric acid (IBA) and Kinetin (KIN) on the basis of trial and error method media and growth regulators ensures their conservation from expected extinction.