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A New Diploid Cytotype of *Lygodium Flexuosum* (L.) Sw. (Lygodiaceae - Pteridophyta)

Shashank Kumar Singh[1], Shobhit Kumar Srivastava[2], S. Dominic Rajkumar[3]

Department of Botany, St. Andrew's College (PG), Gorakhpur, UP.
[1]shashank2771986@gmail.com, [2]dominicrajkumar1@gmail.com

Abstract: *Lygodium flexuosum (L.) Sw. is a tropical and sub- tropical species. The tetraploid cytotype (n = 60) has been reported widely from several localities in India and the diploid cytotype of n =30 has so far not been reported for this species. Hence the present report of the diploid cytotype is first for this species.*

Keywords: *New cytotype, Lygodium flexuosum, Lygodiaceae, India*

1. INTRODUCTION

The genus *Lygodium* is represented by 10 species in India (Dixit, 1984), 2 from South India (Manickam and Irudayaraj 1992) and in Uttar Pradesh so far only species is reported (Chandra, 2000). The report of *Lygodium flexuosum* is new to Uttar Pradesh. *Lygodium flexuosum* is reported to be present in many localities in India like Dehra Dun: Robber's cave. Rajpur, Mussoorie near mossy falls, Chamoli Garhwal: Augustmuni forest, Guptakashi, Kalimath, Ookhimath, Mastura, Nagpur block near Gaduna, Nanital: Dogaon, Tanakpur, Bhaber forest, Almora: Jageshwar, Pithoragarh: Lohaghat, Pithauragarh, Thal, Thalkedar, Garon, Darjeeling hills Meghalaya, Khasi & Jaintia hills, South and Central India (Khullar 1994). During the recent exploration of Kushmi forest range of Gorakhpur, Uttar Pradesh *Lygodium flexuosum* was collected for chromosome count. The diploid cytotype of n=30 was recorded. This is the first report of this cytotype for this species universally.The Present study area (Fig. 1) Gorakhpur is bounded by Nepal on the North, Uttarakhand on the North-East, Himachal Pradesh on the North –West and Bihar on the East. They are situated between 23◦ 52'N and 31◦ 28'N latitudes and 77◦ 30'E and 84◦ 39'E longitude.

2. MATERIALS AND METHOD

For cytology, the methodology of Manton (1950), and conventional method of preparation of herbarium was followed. The collected specimens are preserved and deposited in Department of Botany, St. Andrew's College, Gorakhpur, Uttar Pradesh, bearing the accession numbers: 195 & 197.

Specimens Examined: Kusmi forest - Gorakhpur, SACH-195: 17.09.11: 90m

3. OBSERVATIONS AND DISCUSSION

Lygodium flexuosum is a very common species in the study area. In *Lygodium flexuosum* the tetraploid cytotype (n = 60) have been reported widely from several localities in India; Darjeeling (Mehra & Loyal; 1961 c), Kerla; Trivendrum (Abraham *et al*.; 1962), Himachal Pradesh, Mandi District Gohar (Khullar & Kaur; 1975),Pachmarhi, Jambu Dweep (Bir & Vasudeva 1978, Vasudeva & Bir 1982, 1983), Maharastra – Mahabaleshwar, Lonawala, Khandala (Mahabale & Kamble 1981), Sikkim, Rhenok (Singh & Roy 1988), Thenmala, Kallada, Aryankavu, Kulathupuzha Changanachevy,Quilan (Sankari – Ammal 1990). The present report of the diploid cytotype (n = 30) (Fig. 2) for *Lygodium flexuosum* from Gorakhpur, Uttar Pradesh signifies that India is the first distributional area for this cytotype. The sporangia (Fig. 3) and Spore (Fig. 4) structures were studied and were found to be normal in appearance.

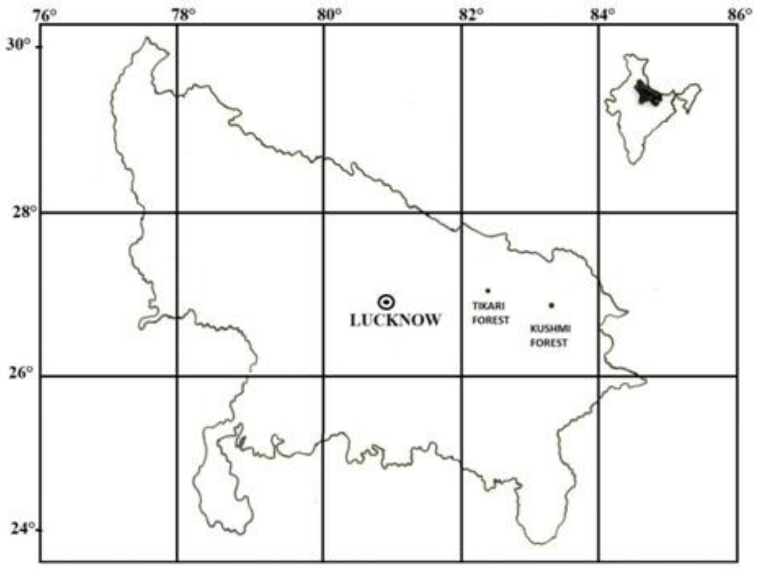

Fig1. *Map of the study area – Uttar Pradesh*

Fig2. *Lygodium flexuosum* (HABIT)

Fig3. *Lygodium flexuosum* (HABIT)

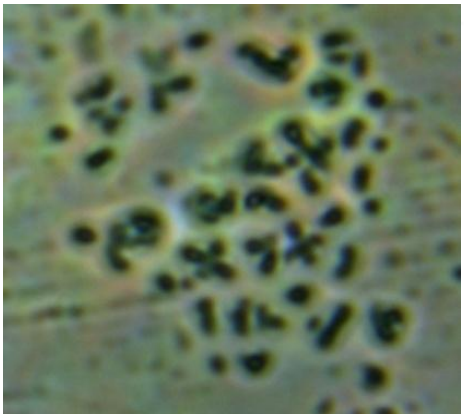

Fig4. *Spore mother cell of Lygodium flexuosum (n = 30)*

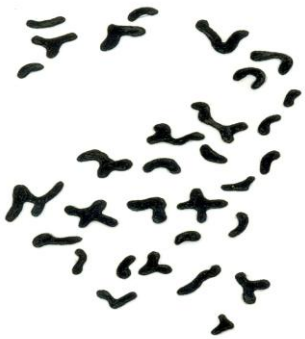

Fig5. Diploid cytotype (n=30) Line diagram

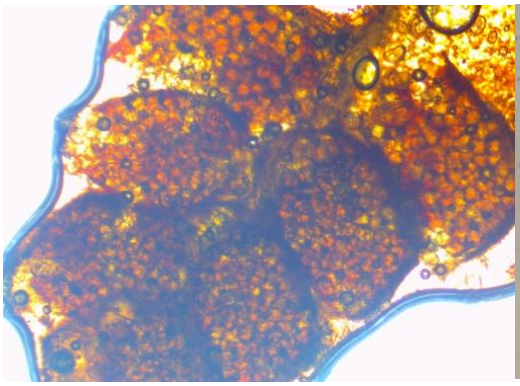

Fig6. Sporangia (4x)

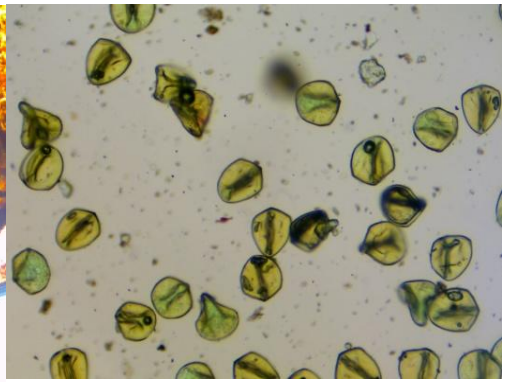

Fig7. Spores (10x)

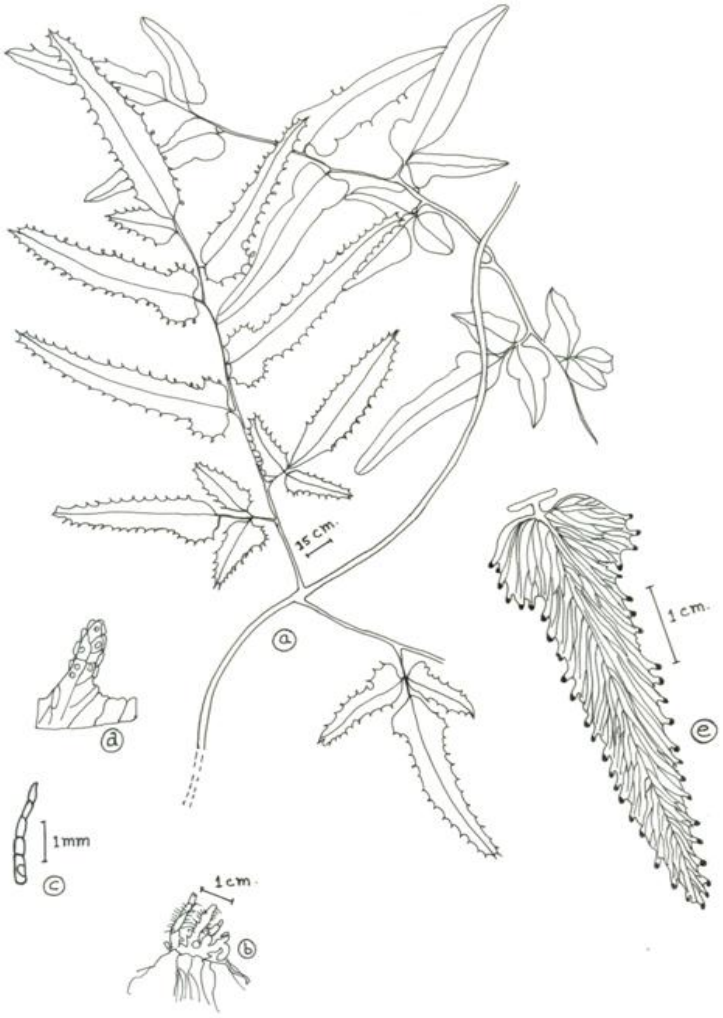

Fig8. *a. Frond of Lygodium flexuosum, b. Portion of the Rhizome, c. Enlarged portion of Scale d. Enlarged portion of Pinnule, e. Venation pattern of Leaf*

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AUTHORS' BIOGRAPHY

Mr. Shahank Kumar Singh, Research Scholar, Department of Botany, St. Andrew's College, Gorakhpur, Uttar Pradesh

Mr. Shobhit Kumar Srivastava, Research Scholar, Department of Botany, St. Andrew's College, Gorakhpur, Uttar Pradesh

Dr.S.Dominic Rajkumar, Senior Lecturer, Department of Botany, St. Andrew's College, Gorakhpur, Uttar Pradesh