

Date: 02.01.2020

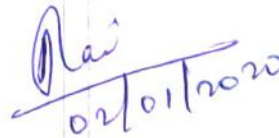
**To
The Teacher-in-Charge,
Parimal Mitra Smriti Mahavidyalaya,
Post-Mal, Dist-Jalpaiguri**

**Subject: Request to perform collaborative research work with
Uttarbanga Krishi Viswavidyalaya, Hill Zone, Kalimpong**

Respected Ma'am,

I would like to inform you that I wish to continue my research work in collaboration with Dr. Sajeed Ali, Professor, Department of Plant Pathology, Regional Research Station, Uttarbanga Krishi Viswavidyalaya, Hill Zone, Kalimpong. This work will not affect my allotted duties for this College.

I will be highly obliged if you kindly allow me to continue my research work.


02/01/2020

Dr. Ritu Rai,
Assistant Professor, Department of Botany,
Parimal Mitra Smriti Mahavidyalaya



**PARIMAL MITRA SMRITI MAHAVIDYALAYA
POST-MAL, DIST-JALPAIGURI**



Date: 03.01.2020

This is to certify that Dr. Ritu Rai, Assistant Professor, Department of Botany is a bonafide teacher of this College and is serving this College from 05.09.2019. The undersigned has No Objection if Dr. Ritu Rai continues her research work in collaboration with Dr. Sajeed Ali, Professor, Department of Plant Pathology, Regional Research Station, Uttarbanga Krishi Viswavidyalaya, Hill Zone, Kalimpong after doing her normal duties of this College.

Dr. Ritu Rai
03/01/2020
Teacher-in-Charge

**Parimal Mitra Smriti Mahavidyalaya
Post-Mal, Dist-Jalpaiguri**

Teacher-in-charge
**PARIMAL MITRA SMRITI MAHAVIDYALAYA
MAL, JALPAIGURI**

UTTAR BANGA KRISHI VISWAVIDYALAYA
REGIONAL RESEARCH STATION (HILL ZONE)
KALIMPONG - 734301 (W.B.)



Dr. Sarad Gurung Ph.D
Prof & Officer In-Charge

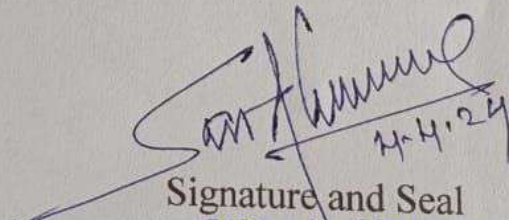
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Date: 04.04.24

CERTIFICATE OF RESEARCH COLLABORATION
TO WHOM IT MAY CONCERN

This is to certify that Dr. Ritu Rai of Department of Botany, Parimal Mitra Smriti Mahavidyalaya, Malbazar, Jalpaiguri, is continuing research work in collaboration with Dr. Sajeed Ali, Professor, Department of Plant Pathology, Regional Research Station, Uttar Banga Krishi Viswavidyalaya, Hill Zone, Kalimpong, West Bengal. 734301, since 2nd February, 2022.


Signature and Seal
Office In-Charge
Regional Research Station
Hill Zone, U. B. K. V.
Kalimpong

Preliminary Observation on The Ecological Amplitude of *Hypoestes phyllostachya* Baker in Darjeeling and Kalimpong Himalayas

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²Regional Research Station, Uttar Banga Krishi Viswavidyalaya, Hill Zone, Seed Farm, Kalimpong, West Bengal. 734301

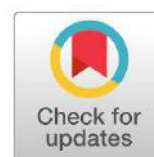
³Department of Botany, Kalimpong College, Kalimpong, West Bengal, India. 734301.

Abstract

Hypoestes phyllostachya Baker (“Polka dot Plant”) is an exotic species that is quite problematic weed of Madagascar origin in Darjeeling and Kalimpong regions of Eastern Himalayan Vegetation. Present study was carried out in 26 different localities covering a vertical distribution from an altitude of 90 msl (Teesta Bazar) to 2,478 msl (Senchal Lake) and horizontal distribution from Rimbik (27.1182° N, 88.1084° E) to Bindu (27.0977° N, 88.8713° E), which revealed its very high invasive potential and ecological amplitude. Its presence in agricultural land together with forest and open land has been a matter of concern as it is creating a threat to the local floras. It was strongly felt that its control measure has to be implemented immediately in order to restore the ecological balance in these local areas.

Keywords: Weed; Invasive species; Ecological amplitude; Control measure; Horizontal and vertical distribution.

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Introduction

Hypoestes phyllostachya Baker commonly known as “Polka dot plant” belongs to Acanthaceae family is a plant of Madagascar origin. It is thought to be a foreign element and has very high invasive nature (Annon, 2016a, Moktan, 2017). Therefore, it is considered as one of the most problematic weeds (Annon, 2016b), particularly in Eastern Sub-Himalayan region. The increasing population of such exotic species in local region has been a great threat to the local floristic environment which may cause enormous loss of genetic diversity and ultimately species extinction.

While working on the plant resources of Mahananda Wildlife Sanctuary located in the Darjeeling district of West Bengal, Kumar et al. (2009) added new record of *H. phyllostachya* from West Bengal. Similarly, this species was also reported from the State of Kerala as an addition to the Flora of India (Remadevi and Binojkumar, 2001). This species was originally described from

Madagascar and is also distributed in North America (Kumar et al., 2009). However, its frequent presence in many places of Darjeeling and Kalimpong districts of West Bengal prompted us to conduct the survey to find out the ecological amplitude as well as its distribution pattern in these two districts of West Bengal.

Materials and Methods

Regular surveys were conducted covering different seasons and various regions (table 1) of Darjeeling and Kalimpong hills. Relevant samples were collected, and herbarium sheets were prepared (Paul et al, 2020). Collected samples were identified using available literatures and also by comparing the herbarium sheets at the Herbarium of Department of Botany, Kalimpong College. Local farmers and tea garden workers were also asked regarding the invasion problems and other related issues of *Hypoestes phyllostachya* in their localities.

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