



## Best Practice: I

### Title of the Practice

### *Breaking the Silence: Yes I Bleed - Menstrual Health and Hygiene*

### Objectives of the Practice

Women are generally vulnerable to different health problems and issues which need to be addressed. The College aware of its responsibility towards the society endeavors to address these issues by spreading awareness in the students and larger society.

The objective of the practice is to enhance the knowledge regarding menstruation and increase the awareness on menstrual hygiene and management among the students, faculty members and staffs. The lack of information about menstruation, discriminatory social norms, cultural taboos, and associated stigma lead girls to follow unsafe, unhygienic and unhealthy menstrual practices with severe impact on their physical and mental health. Therefore it is imperative for the Institution to educate and promote gender related issues for holistic development and act as a catalyst to bring about change in attitude towards such taboos and misconceptions. Some of the objectives of the practice are mentioned below:

- ❖ Creating awareness on menstruation-menstrual hygiene and management
- ❖ Access amenities like girls common room, girls toilet, sanitary napkins, etc.
- ❖ Ensuring safe and environment friendly disposal of sanitary pads
- ❖ To reduce absenteeism from classes during menstruation as it has adverse effect on their performance.
- ❖ To abate/eradicate the discriminatory social, cultural norms, taboos and stigma associated with menstruation.
- ❖ This practice is far reaching as the students can acts as educators to their family, friends and juniors, thus breaking the myths and taboos associated with menstruation.

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## The Context

Menstruation is a normal physiological process for every female falling in the reproductive age-group, but still it is considered a taboo and a subject seldom discussed openly in Indian society. The issue remains unaddressed most of the times. Education has great impact on understanding hygiene that has a direct role to play in development.

Approximately more than 1900 female students are enrolled at Darjeeling Government College constituting more than 52% of the college strength. Majority of them are from rural background economically weaker sections. Due to financial constraints girls are deprived of access to sanitary napkins often resulting in absenteeism. Non accessibility of proper menstrual protection products and non-hygienic practices lead to physical and mental stress. Acute water crisis in Darjeeling town also impacts the hygiene. The College felt that menstruation should not impede the performance of female students. Hence, the Institution regularly initiates sustained efforts to conduct awareness programs on menstrual health and hygiene which enables girl students to participate in daily activities even during their periods without being subjected to stigma and inconveniences.

## The Practice

Darjeeling Government College is a co-educational institution established in 1948. Throughout the last 75 years of its journey it has been a center for disseminating values of gender equality and equity. Apart from academic pursuit the institute takes regular initiatives and utmost care in ensuring Gender equality and equity among students. The college conducts Orientation Programs for new Students every year to explain the values, vision and mission of the institution. Among the values and mission of the institution, gender related issues are given substantial importance. This practice is implemented by training the students and encouraging them to participate in various gender related activities and programs. The college conducts various sensitization campaigns, workshops, awareness programs, lectures, seminars counseling and outreach activities through NSS, NCC, Gender Sensitization Committee, Anti- Sexual Harassment Cell Committee and the Internal Complaints Committee to create awareness on gender related issues and instill a responsibility among students.

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One of the sustained efforts of the institution is spreading awareness on menstrual health and hygiene relentlessly. The college through its cell, committees and NSS Units (I &II) organizes various programs and initiatives to educate students on Menstruation; menstrual health and hygiene both within and outside the college.

**Within the campus** - On the occasion of International Women's Day the college regularly holds talks and awareness programs related to women issues, health and Hygiene. The female faculties through Emotional storytelling play significant role in raising awareness and garnering support for menstrual hygiene initiatives. Sharing personal experiences, testimonials, and stories of impact can inspire others to take action and contribute to breaking the silence and stigma surrounding menstruation. Most of the programs related to gender prioritize menstrual health and hygiene. On the occasion of Menstrual Hygiene Day the college holds awareness talk entitled "*Breaking the Silence: Yes I Bleed*" by female faculties to sensitize the students and staff on the myths surrounding menstruation and means to ward away the myths. Talk on '*Physiology of Menstruation*' explains menstruation to be a very normal healthy physiological process.

NSS Unit volunteers conducted programme titled 'Observance of World Menstrual Health and Hygiene Week- A Social Experiment'. The program had two parts, in the morning few of the female volunteers of NSS, DGC, roamed around college premises and road stretch till Padmaja Naidu Zoological Garden along with fake period stain on their dress. They have tried to capture the reactions of students and public alike. They compiled the clips and then played it in the seminar hall of the college with other volunteers and students in the afternoon. The second half of the program included an inclusive and comprehensive discussion about menstrual health.

Understanding the need of menstrual hygiene and the inconvenience faced by the female students, the faculties of the college, voluntarily through their private contribution purchased and installed a Sanitary Pad Vending Machine and Incinerator for the students. The objective of installing the vending machine in college is to provide convenient and discreet access to menstrual hygiene products for students. It aims to promote menstrual health and ensure that students have easy access to affordable and essential sanitary pads whenever they need them, thereby promoting gender equality and supporting the wellbeing of female students. The student can avail the facility through a nominal amount and this collected amount is used to refill and maintain the machine. Workshop was also conducted on "Handling of Sanitary Napkin Vending Machine and Incinerator".

**Outside the Campus**- As a part of the extension and outreach program the NSS, Units I & II organizes awareness programs at local schools to educate the adolescents. The volunteers of N.S.S Unit visited local schools, organized awareness programs on menstrual hygiene and the

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volunteers distributed sanitary pads to the students. It also organized Special Camp to spread awareness on menstrual hygiene and about the myths and taboos related to menstruation through small skit.

### **Evidence of Success**

The initiative and awareness program organized by the college within and outside the campus helped to understand that menstruation is a normal biological process.

The evidence of success is palpable through some of the following observations.

- ❖ Large number of students including male students attends the awareness programs and initiatives helping to bridge the gender gap.
- ❖ The Sanitary Pad Vending Machine is being utilized well. This helps girl students to manage periods; they need not carry the pads in their bags.
- ❖ Inconveniences and absenteeism from classes during menstruation has reduced remarkably.
- ❖ Male students are also more aware of the inconveniences and problems of female health and hygiene.
- ❖ Education on Physiology of Menstruation, menstrual health and hygiene.
- ❖ The confidence in the girls students is palpable with overwhelming participation in all activities of the college.
- ❖ Change in attitude towards menstruation
- ❖ The outcome of this practice is not just limited to the campus and the students but it has encouraged these students to spread to their family friends and juniors on returning home. Therefore these students are the real agents of change. The impacts of these programs are far reaching.
- ❖ Helped to maintain healthy menstruation and concentrate on studies.
- ❖ Reduced the risk of urinary tract infections because of using damp rags and clothes.

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### Problems Encountered and Resources Required

Menstruation and menstrual practices are still clouded by taboos and socio-cultural restrictions resulting in adolescent girls remaining ignorant of the scientific facts and hygienic practices resulting into adverse health outcomes. The following are some of the problems encountered and resources required in sustaining this practice.

- Since, discussing menstruation is a taboo seldom discussed openly, there is hesitation to collect sanitary pads or even to attend programs relating to it.
- The college has around 3600 students and more than 52% are girls. The amenities relating to female students must be upgraded and expanded.
- The college has only one Sanitary Pad Vending Machine and incinerator: the number should be increased.
- Paucity of funds to organize programs and works
- Sanitary pads should be made available free of cost.
- Proper sanitation and water hygiene need to be promoted

### Notes (Optional)

Educational Institutions play a pivotal role for any progressive changes in society. The activities of the colleges are not just limited to the campus and the students but it penetrates to their friends, family, locality and society, on returning home. Therefore, these students are the real agents of change. Thus, the impact of these practices and programs are far reaching. Gender related issues especially subjects of taboo can be addressed if sustained programs and initiatives can be introduced in all educational Institutions starting from middle schools to colleges. A change in outlook and better menstrual and reproductive health can be achieved by breaking the taboo, socio-cultural restrictions. Educational Institutions can play leading role in breaking the silence.

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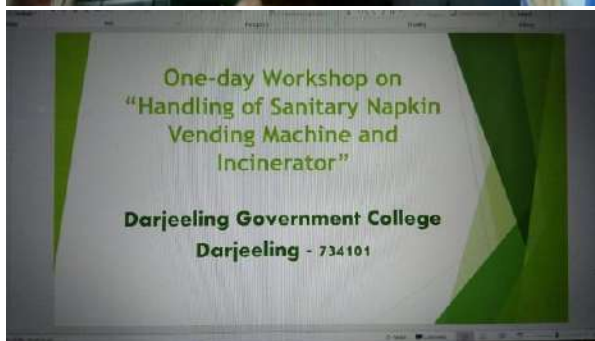




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*Some Photographs of Menstrual Health and Hygiene Programs and initiatives*



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## Best Practice: II

### Title of the Practice

### *Endemic and Rare Orchids Conservation through Tissue Culture Techniques with Community Involvement*

### Objectives of the Practice

Darjeeling, nestled in the Eastern Himalayas, is a haven for botanical wonders, boasting a rich diversity of endemic and rare orchids that require urgent conservation efforts. Among the most prominent are the *Dendrobium* species, including *D. moschatum*, *D. chrysanthum*, *D. fibriatum*, *D. gibsonii*, *D. moniliforme*, *D. sulcatum*, and others. The *Cymbidium* genus is equally well-represented, with species like *C. gammieanum*, *C. hookeranum*, *C. tracyanum*, *C. devonianum*, *C. erythraeum*, *C. lancifolium*, *C. mastersii*, and *C. longifolium* gracing the forest canopy. *Vanda alpina* and *V. pumila* add to this diverse tapestry, showcasing the remarkable adaptability of these plants. These orchids are highly valued not only for their aesthetic appeal but also for their commercial potential. They serve as a vital source of material for breeding programs, leading to the development of new and captivating hybrids. Protecting these orchids and their habitats is essential to ensure the continued existence of these captivating plants for future generations. In collaboration with the local community, the Department of Botany, Darjeeling Government College aims to achieve the following objectives:

- To safeguard the genetic diversity of endangered and rare orchid species by establishing a viable in-vitro and ex-situ conservation program.
- To increase the population of critically endangered orchid species through micro propagation techniques, leading to their recovery in the wild.
- To create a sustainable population of rare orchids in controlled environments for future reintroduction into their natural habitats.
- To develop and optimize efficient and cost-effective micro propagation protocols for different rare orchid species.
- To research the biology, ecology, and reproductive strategies of rare orchids to further enhance conservation efforts.
- To develop sustainable management practices for orchid conservation within the Darjeeling region surrounding the orchid habitats, such as eco-tourism and sustainable resource management.

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- To raise awareness and involve local people in the conservation process through training programs, community involvement in propagation and reintroduction efforts, and sustainable livelihood opportunities.

### The Context

- Darjeeling lies within the Eastern Himalayas and is recognized as an important constituent of biodiversity with rich flora and fauna, including numerous orchid species such as *Dendrobium*, *Cymbidium*, *Bulbophyllum*, *Ceologyne*, *Vanda*, etc.
- Orchids hold cultural and medicinal importance for local communities in Darjeeling. Contextually, Kurseong one of the subdivisions of the Darjeeling district is known as 'Land of White Orchids', for which the indigenous people are intimately attached to orchid rearing and planting.
- Many orchid species in Darjeeling are facing threats due to habitat loss, over-collection for horticultural trade, and climate change.
- Micropropagation helps to create a large number of plants from a single individual or propagule, adding to the conservation of rare and endangered orchid species.
- By establishing a healthy population of orchids, the project aims to restore degraded habitats and promote biodiversity.
- Micropropagation can provide a viable alternative to wild collection, ensuring the long-term sustainability of these orchids.
- Involving local people ensures the project's success by fostering ownership and promoting sustainable practices.

### The Practice

The Department of Botany, Darjeeling Government College, in collaboration with local people, has employed a multifaceted approach for micropropagation and conservation of rare orchids found in the region. This approach combines scientific techniques with community engagement for sustainable conservation.

➤ Plant collection and identification:

The information regarding the orchids' names, distribution, and status was collected through a literature survey. The field surveys were conducted in wild habitats, orchid gardens maintained by local orchid growers, and Llyod Botanical Garden, Darjeeling to find the proposed orchid species. These species were collected and identified using books like *Flora of Bhutan* Vol 3, *Orchids of the Sikkim Himalaya* Vol VIII, and *A Century of Indian Orchids* Vol V available in the seminar library. The orchids selected for the

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present project are *Cymbidium devonianum*, *C. gammieanum*, *C. Tracyanum*, *Dendrobium hookerianum*, *D. chrysanthum* and *Vanda cristata*.



Orchids grown and maintained by community people which were observed during field survey

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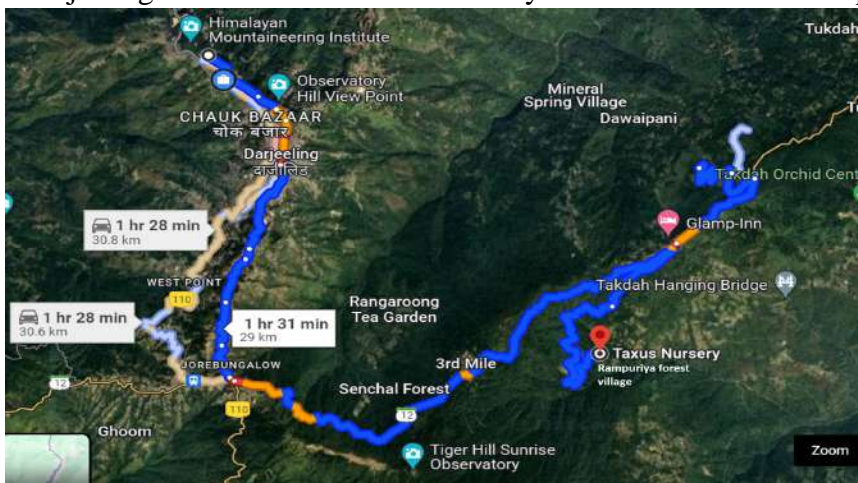




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- Selection of village/community site: As per the suitable climatic conditions – temperature, rainfall, humidity, and altitude Rampuriya Forest Village lies 20 km southeast of Darjeeling is selected for the community involvement in the said program.



Rampuriya forest village, 20 km away from Darjeeling Govt. College

- Micropropagation
- In-vitro culture: This technique utilizes sterile culture media and controlled environmental conditions to establish and multiply orchid plantlets from explants such as seeds, shoot tips, and leaf segments.
  - Sterilization: Surface sterilization of explants is crucial to prevent contamination. Techniques like chemical sterilization with bleach or other disinfectants are employed.
  - Media preparation: A specific nutrient-rich medium with appropriate hormones (auxins and cytokinins) is prepared to stimulate growth and development.
  - Culture conditions: Culturing involves specific temperature, light intensity, and humidity conditions depending on the orchid species.
  - Tissue culture: This involves the inoculation of explants, formation of protocorm-like bodies (PLBs), callus formation, and organogenesis. Organogenesis includes the formation of shoots and roots directly from explants.

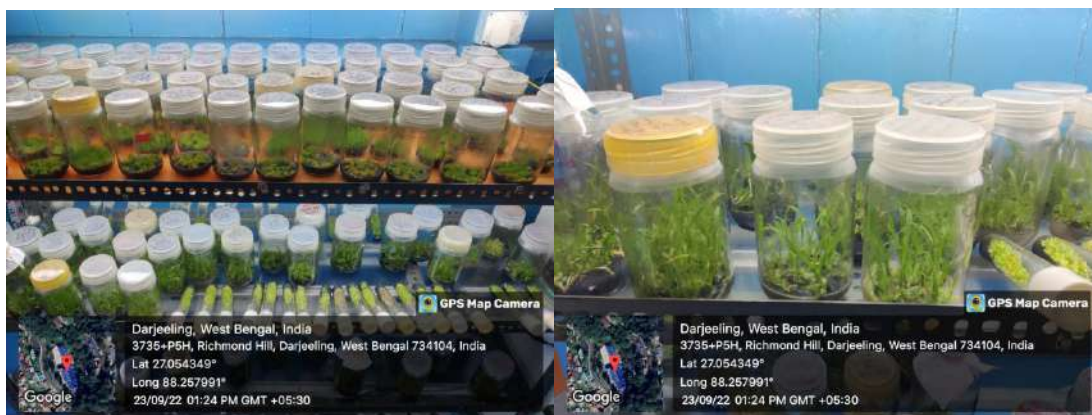
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Orchids propagated through tissue culture techniques

➤ **Hardening**

Orchid plantlets raised from tissue culture are often fragile and require specialized care to promote their growth and survival. One important aspect of orchid tissue culture is the hardening process, which involves gradually acclimating the plantlets to environmental conditions similar to those in their natural habitat. Hardening was done by growing plantlets in a soilless potting mix, such as a mixture of moss, perlite, and cocopeat in a shaded and humid environment. This method allows the plantlets to establish their roots in a more naturalistic setting and helps to promote the development of above-ground structures. It was further enhanced by frequent watering and fertilization. The whole process was carried out in a greenhouse.

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**Orchid hardening process**

➤ **Conservation techniques**

- Ex-situ conservation: Establishment of nurseries, and arboretum for maintaining a collection of rare orchids outside their natural habitat.
- Education and awareness: Engaging local communities through workshops, seminars, and field visits to educate them about the importance of orchid conservation and sustainable practices.

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- Community-based monitoring: Training locals to monitor orchid populations and report any threats or changes.
- Community-based orchid cultivation: Promoting sustainable cultivation of rare and endemic orchids by local communities, creating alternative livelihoods, and reducing pressure on wild populations.



*Cymbidium tracyanum* *Cymbidium gammieanum* *Cymbidium devonianum*



*Dendrobium chrysanthum*

*Dendrobium nobile*

*Vanda cristata*

Orchids grown in nursery as well as in their natural habitat

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➤ **Monitoring the growth**

This comprehensive monitoring process involves meticulous observation and recording of various parameters that reflect the health and progress of these valuable plants. Temperature, humidity, and light levels are closely tracked to ensure optimal conditions for orchid growth. Periodic measurements of these environmental variables help identify any fluctuations that could potentially hinder their development. The substrate, which serves as the growth medium for orchids, is also closely inspected for moisture content, pH, and nutrient availability. Regular assessments of the root system, including its size, colour, and firmness, provide valuable insights into the plant's overall health. Visual observations play a vital role in monitoring orchid growth. Regular inspections of leaves, stems, and flowers can reveal signs of disease, pests, or physiological disorders. Prompt identification and treatment of any issues minimize potential damage and ensure the well-being of the plants. In addition, meticulous records of flowering patterns, including the timing, frequency, and duration of blooms, are maintained to monitor reproductive success and provide valuable information for future cultivation efforts.

Moreover, growth rate and biomass accumulation are assessed using non-invasive techniques, such as measuring the height of new shoots or weighing the leaves. This data contributes to understanding the growth dynamics of the orchids and can inform decisions regarding transplantation or division. By combining these diverse monitoring methods, researchers, horticulturists, and conservationists gain a comprehensive picture of the growth and development of rare and endangered orchids in nurseries and gardens, enabling them to optimize cultivation practices and contribute to their long-term preservation.

**Evidence of Success**

This project is a distinctive approach to biodiversity conservation within the Indian Higher Education sector. This initiative bridges the gap between scientific research and community engagement, promoting a comprehensive strategy for preserving valuable and rare plant species, specifically orchids. The project's uniqueness can be attributed to several key factors:

Firstly, the project utilizes the advanced technology of tissue culture to propagate orchids. This method offers a sustainable alternative to conventional propagation techniques that rely on seed dispersal or limited plant material.

Secondly, the project places a strong emphasis on community involvement, recognizing the critical role that local communities play in conservation efforts. By sharing knowledge and

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training community members in tissue culture techniques, the project fosters a sense of ownership and empowers communities to become active participants in the conservation process. This participatory approach not only enhances conservation outcomes but also strengthens local communities' livelihoods by creating opportunities for sustainable income generation through orchid cultivation and trade.

Finally, the project underscores the crucial role of Indian Higher Education institutions in leading research and development efforts that directly address pressing societal issues, such as biodiversity loss. By integrating scientific expertise with community engagement, the project demonstrates the transformative potential of academia in driving positive change.

#### 6. Problems Encountered and Resources Required

- Technical Expertise: Micro propagation requires specialized skills and resources, including laboratory facilities and trained personnel.
- Financial Constraints: The project requires significant funding for research, equipment, and infrastructure development.
- Orchid biology: Different orchid species have unique growth requirements, making it challenging to adapt techniques for successful propagation.
- Climate changes: The impact of climate change on the orchid population requires careful consideration, as suitable growing conditions may change drastically in the coming years.
- Community engagement: Building trust and encouraging participation from local communities can be challenging due to cultural and historical factors.
- Illegal trade: The illegal trade of orchids remains a significant threat, necessitating constant vigilance and enforcement.
- Indigenous knowledge: Local communities possess valuable traditional knowledge about orchids and their uses, which can be incorporated into the project.

#### Notes (Optional)

Higher education Institutions can incorporate such programs and initiatives which conserve and maintain the local heritage incorporating the local community for sustainable development. This will inculcate a sense of responsibility and participation to the academic and research community as well as the local community. The 'Endemic and Rare Orchids Conservation through Tissue Culture Techniques with Community Involvement' project is a unique and multi-faceted approach to biodiversity conservation. By leveraging advanced technology, community engagement, and academic expertise, this project promotes the sustainable conservation of rare and endangered orchids while empowering local communities and fostering a sense of responsibility towards India's rich orchid diversity.

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