

# GOVERNMENT DEGREE COLLEGE FOR MEN, SRIKAKULAM



**FACILITATION, TRAINING & RESEARCH CENTRE**

**AN INITIATIVE OF INDO-US DBT FOLDSCOPE PROJECT**

## **PRELUDE**

In an era where scientific advancements play a crucial role in societal development, the accessibility of scientific tools and education is of paramount importance, especially in underdeveloped rural areas. Recognizing this need, the Department of Biotechnology at Government Degree College for Men, Srikakulam, has embarked on a transformative journey to bridge the gap between modern scientific research and rural communities. With the collaboration of DBT New Delhi and the Science Association, the college has established the FOLDSCOPE Facilitation, Training & Research Centre. This initiative, inaugurated on May 10, 2022, under the Indo-US DBT Foldscope Project, aims to democratize science by making affordable, innovative tools like Foldscope accessible to all. This center not only provides low-cost scientific instruments but also enhances scientific literacy, fosters research and innovation, and engages the community in meaningful scientific activities. Through its dedicated efforts, the FOLDSCOPE Facilitation, Training & Research Centre is set to revolutionize the scientific landscape of Srikakulam, empowering students and researchers to explore the microscopic world with ease and affordability.

## FOLDSCOPE FACILITATION, TRAINING & RESEARCH CENTRE

The Department of Biotechnology at Government Degree College for Men, Srikakulam, in collaboration with DBT New Delhi and the Science Association, has established the FOLDSCOPE Facilitation, Training & Research Centre. This center was inaugurated on May 10, 2022, as part of the Indo-US DBT Foldscope Project. The aim of this initiative is to provide affordable scientific tools to underdeveloped rural areas, specifically in Srikakulam.

### OBJECTIVES

- **Promote Affordable Scientific Tools:** To introduce and popularize low-cost scientific instruments, like Foldscope, among students and researchers in rural areas.
- **Enhance Scientific Literacy:** To improve scientific understanding and literacy through hands-on training and workshops.
- **Encourage Research and Innovation:** To foster a culture of research and innovation using simple, affordable tools.
- **Facilitate Community Engagement:** To engage the local community in scientific activities, promoting broader participation in science.

### DESCRIPTION

Foldscope is an origami-based, affordable (~ \$1 cost), simple microscope with a magnification of 140X. It can be assembled from paper, lenses, and magnets, and can connect to mobile phones to take photographs and videos of specimens. Additionally, it can project images on a screen. Discovered by Dr. Manu Prakash, an Indian-born scientist at Stanford University, USA, Foldscope aims to make inexpensive and easy-to-use scientific tools available worldwide, especially in developing countries.

The Government of India, through the Department of Biotechnology (DBT), Ministry of Science and Technology, has been extensively popularizing Foldscope across the country via workshops and micro-grant projects. The FOLDSCOPE Facilitation, Training & Research Centre at Government Degree College for Men, Srikakulam, has been established with the following key components:

- **Training Programs:** Regular workshops and training sessions for students, faculty, and local community members on the assembly and use of Foldscope.
- **Research Projects:** Encouraging research projects using Foldscope to explore various scientific phenomena at a micro level.
- **Awareness Drives:** Conducting awareness campaigns to educate the local community about the benefits and uses of Foldscope.
- **Collaborations:** Partnering with local schools, colleges, and research institutions to expand the reach and impact of Foldscope.

## OUTCOMES

- **Increased Accessibility to Scientific Tools:** Many students and researchers in Srikakulam now have access to affordable microscopes, enabling them to conduct experiments and explore microscopic worlds.
- **Enhanced Scientific Skills:** Participants have developed practical skills in using Foldscope, improving their understanding of scientific concepts and fostering a hands-on learning approach.
- **Community Involvement:** The initiative has successfully involved the local community in scientific activities, increasing their interest and participation in science.
- **Research Publications:** The center has facilitated several research projects, resulting in publications that highlight the innovative use of Foldscope in various scientific studies.
- **Educational Outreach:** Through workshops and training sessions, the center has reached a significant number of students and educators, promoting scientific literacy and encouraging curiosity and innovation.

Overall, the FOLDSCOPE Facilitation, Training & Research Centre at Government Degree College for Men, Srikakulam, is a pivotal initiative in advancing scientific literacy, research, and community engagement in the region, making significant strides in promoting affordable and accessible scientific tools.

**Government Degree College for Men, Srikakulam**

**FOLDSCOPE**

**Facilitation, Training & Research Centre**

**An Initiative of Indo-US DBT Foldscope Project**

**Established & Managed by**

**Department of Biotechnology**

**In Collaboration with**

**DBT-New Delhi**

**&**

**Science Association, Research Centre, Faculty Forum**

**Inaugurated on**

**10-05-2022**

**10-05-2022**

### **Foldscope – The Paper Microscope**

Foldscope is an origami based, affordable (~ \$1 cost), simple microscope of 140X magnification that can be assembled from paper, lens and magnets. Foldscope could connect with mobile phone, take photographs and videos of the specimen and also could project image on the screen. It was discovered by Dr. Manu Prakash, an Indian born scientist at Stanford University-USA aims to make inexpensive and easy tools available for scientific use in the world, especially in developing countries. Currently the Department of Biotechnology (DBT), Ministry of Science and Technology, Government of India extensively popularizing this foldscope tool across the country through workshops and micro grant projects. Keeping these aspects in view & to familiarize low cost and affordable low cost scientific tools to the Srikakulam a n under developed rural area the department of Biotechnology in collaboration with DBT New Delhi & Science Association of GDC M Srikakulam the Training & Research center for Foldscope Established

**Government Degree College (Men)-Srikakulam**

**FOLDSCOPE**

**Facilitation, Training & Research Centre**

**An Initiative of Indo-US DBT Foldscope Project**

**10-05-2022**



## కళాశాల విద్యార్థులకు శిక్షణ



శిక్షణ తీసుకుంటున్న విద్యార్థినులు

Principal Dr. P. Surekha Inaugural Speech in the Foldscope Centre



Establishment

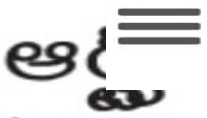
**Srikakulam, Andhra Pradesh, India**  
 D.No. 1-6-16, 2nd Floor, upstairs sbi adb, Govt. Arts College Road, Ambedkar Jct, Shanti Nagar Colony, Balaga, Srikakulam, Andhra Pradesh 532001, India  
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కలెక్టరేట్(శ్రీకాకుళం), న్యూస్టుడే: బయోటెక్నాలజీ విద్యార్థి సౌజన్యంతో ప్రభుత్వ పురుషుల డిగ్రీ కళాశాలలోని జీవశాస్త్ర విభాగం, సైన్స్ అసోసియేషన్లు సంయుక్తంగా ఫోల్డ్ స్కోప్ శిక్షణను మంగళవారం నిర్వహించారు. ఈ సందర్భంగా ప్రెస్నిపల్ డా.పి.సురేఖ అడ్వాడుతూ సైన్స్ అధ్యయనంలో ఈ ఫోల్డ్ స్కోప్ అనే తప్ప సింపుల్ మైక్రోస్కోప్ ఎంతగానో ఉపయోగపడుతుందన్నారు. ప్రతివారం దీనిపై 20 నుంచి 30 మంది విద్యార్థులకు కార్యశాల నిర్వహిస్తున్నారన్నారు. ఫోల్డ్ స్కోప్ సెంటర్ కన్వీనర్ ఎం.ప్రదీప్, బయోటెక్నాలజీ అధ్యాపకులు ఆర్.హరిత, వైస్ ప్రెస్నిపల్ సత్యనారాయణ పాల్గొన్నారు.

Convener Mr. M. Pradeep giving Training on Foldscope

## UG to School Level TOT

### FOLDSCOPE Facilitation, Training & Research Centre



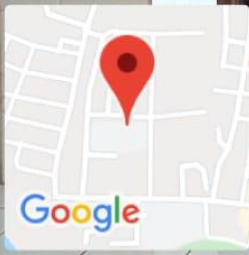
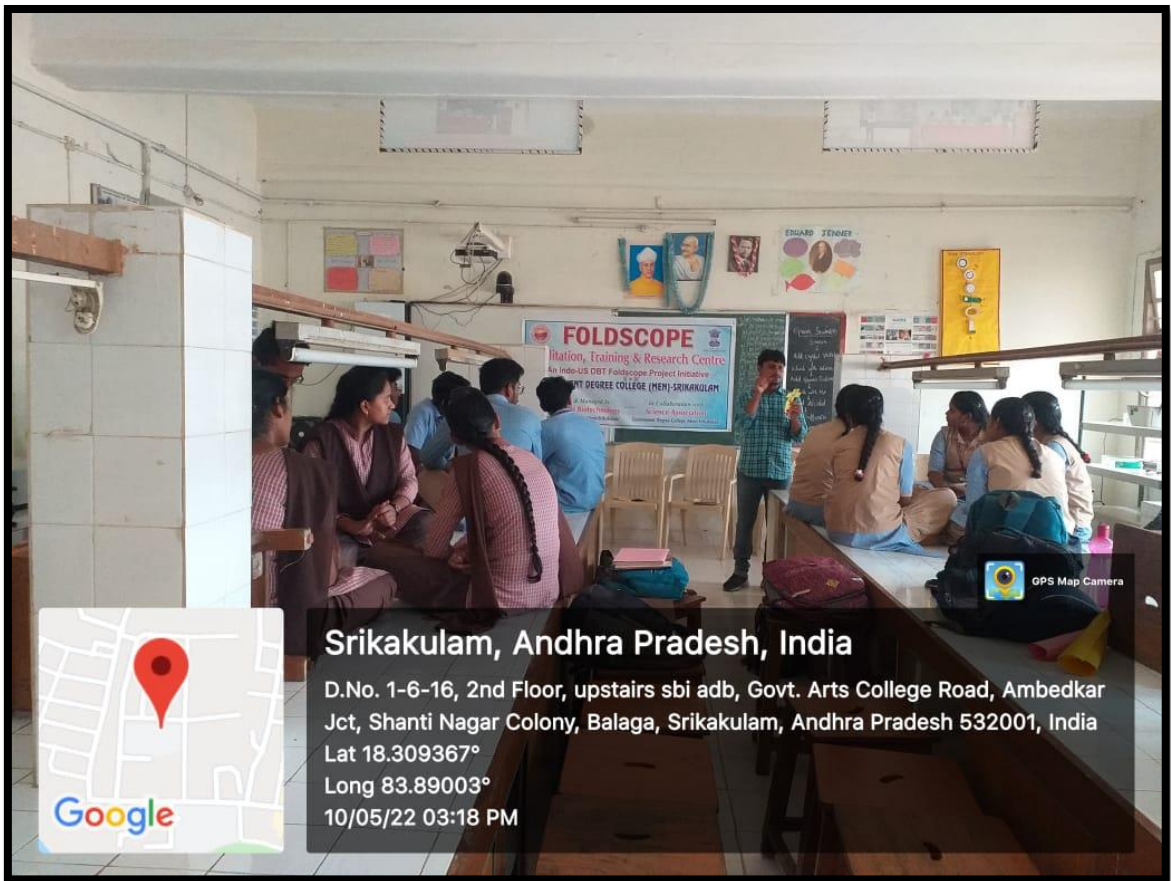
శ్రీకాకుళం న్యూకాలనీ: శ్రీకాకుళం ప్రభుత్వ పురుషుల డిగ్రీ కళాశాలలోని జీవశాస్త్ర విభాగం, పరిశోధన విభాగం, సైన్స్ అసోసియేషన్లు సంయుక్త ఆధ్వర్యంలో ఫోల్డ్ స్కోప్ శిక్షణ సెంటర్ను మంగళవారం ప్రారంభించారు. డిపార్ట్మెంట్ ఆఫ్ బయోటెక్నాలజీ(న్యూడిట్) సౌజన్యంతో నిర్వహిస్తున్న ఈ కేంద్రాన్ని ప్రెస్నిపల్ డాక్టర్ పి.సురేఖ ప్రారంభించారు. ఈ సందర్భంగా ఆమె మాట్లాడుతూ సైన్స్ అధ్యయనంలో ఫోల్డ్ స్కోప్ అనే కాగితపు సింపుల్ మైక్రోస్కోప్ ఎంతగానో దోహదపడుతుందని చెప్పారు. కార్యక్రమంలో ఫోల్డ్ స్కోప్ సెంటర్ కన్వీనర్, బయో టెక్నాలజీ విభాగం అధిపతి ఎం.ప్రదీప్, అధ్యాపకులు ఆర్.హరిత, శాంతిదేవి, సత్యనారాయణ, జైపాల్, ఐక్యూఎస్ కోఆర్డినేటర్ డాక్టర్ వై.పోలినాయుడు, సైన్స్ అసోసియేషన్ సభ్యులు ఆదినారాయణ, రవిశంకర్, శ్రీదేవి తదితరులు పాల్గొన్నారు.



అవగాహన కల్పిస్తున్న ఫోల్డ్ స్కోప్ సెంటర్ కన్వీనర్ ప్రదీప్

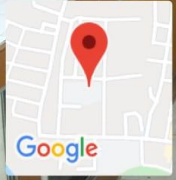
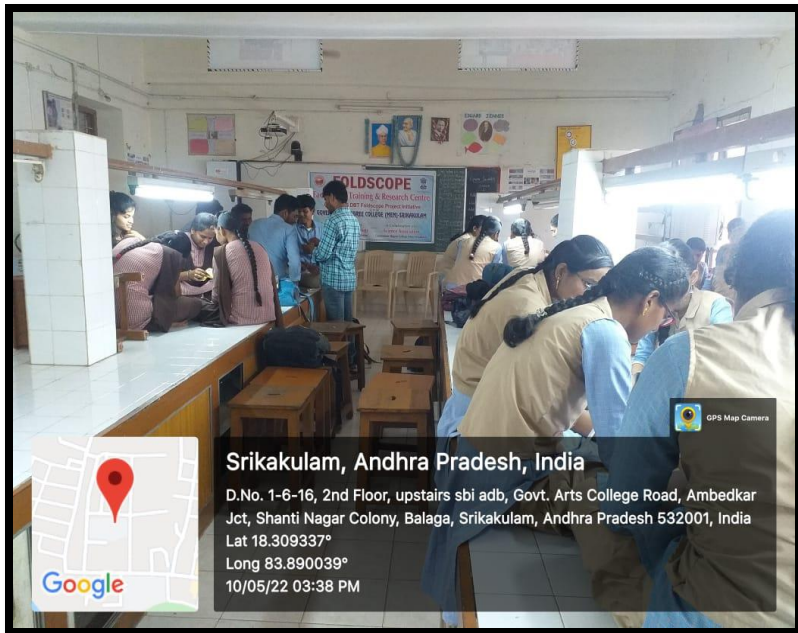
రాయణ, జైపాల్, ఐక్యూఎస్ కోఆర్డినేటర్ డాక్టర్ వై.పోలినాయుడు, సైన్స్ అసోసియేషన్ సభ్యులు ఆదినారాయణ, రవిశంకర్, శ్రీదేవి తదితరులు పాల్గొన్నారు.





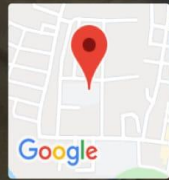
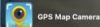
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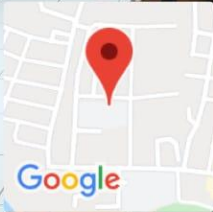
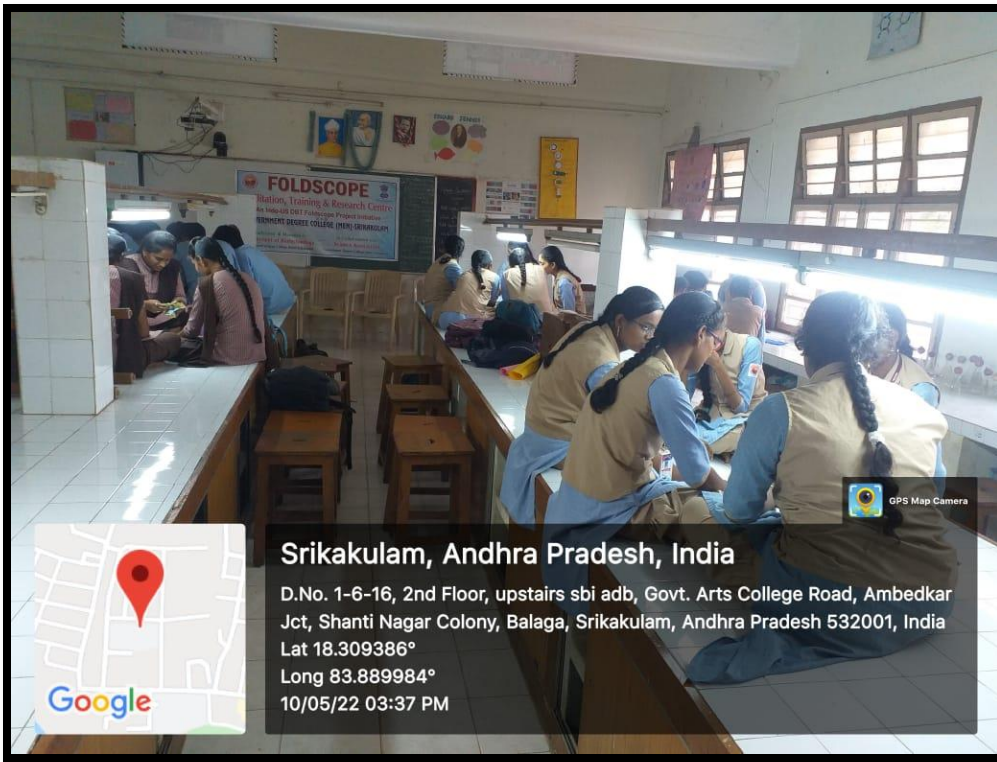


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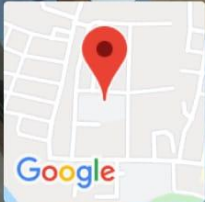
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1. Major relevant pictures (colour) of images taken during use of Foldscope (please post only relevant pictures below):

- **Workshop pictures:** Me & our team conducted several workshops to create awareness on usage of foldscope as an educational and research tools. During these workshops, along with our north east partner Dr. N. L. Raju, Assam Central University, we covered significant number of schools and colleges. Some of the relevant pictures are as shown below



Foldscope workshop organized at Silver Jubilee Degree College at Kurnool, Andhra Pradesh



Foldscope awareness workshop for Faculty Members of Govt. Degree College (Men), Srikakulam, Andhra Pradesh





Foldscope awareness workshop for students of Govt. Degree College (Men), Srikakulam, Andhra Pradesh



Foldscope awareness workshop for students & faculty of Govt. Degree College (Women), Srikakulam, Andhra Pradesh



Foldscope awareness workshop for students of M.L.R. Naidu Degree College, Narasannapeta, Andhra Pradesh



Foldscope awareness workshop for students of Government Degree College (Women), Visakhapatnam, Andhra Pradesh



Foldscope awareness workshop for students of Gayatri Degree College, Srikakulam, Andhra Pradesh



Foldscope awareness workshop for students & faculty of Life Sciences, Vikrama Simhapuri University, Nellore, Andhra Pradesh





Foldscope awareness workshop held at School of Life Sciences, Indira Gandhi National Open University (IGNOU)-New Delhi



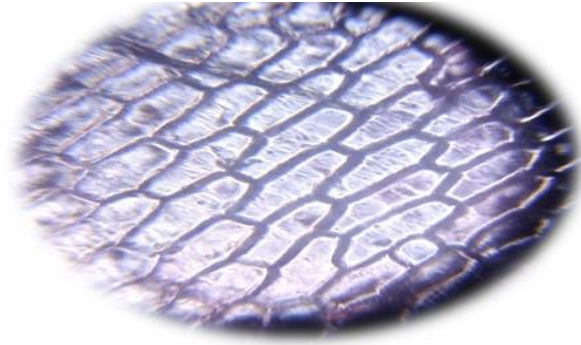
Foldscope awareness workshop held at Government Degree College (Men)-Srikakulam

- Pictures of images (Pollen/ microbes/ tissues etc.) observed using foldscope (please post with place, date and time).



Foldscope image of Monocot Stem picture taken during Foldscope workshop held at Government Degree College for Women, Srikakulam





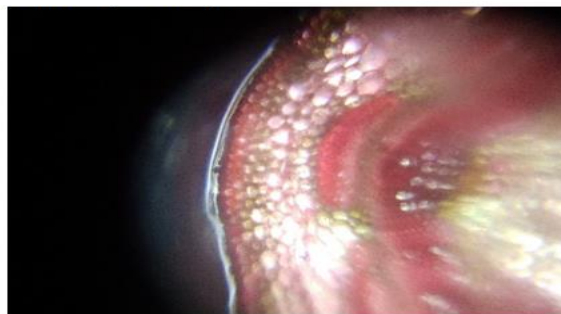
Foldscope image of onion peel stained with crystal violet taken during Foldscope workshop held at Government Degree College for men, Srikakulam



Foldscope image of Mosquito mouth parts taken during Foldscope workshop held at Silver Jubilee Government Degree College, Kurnool – Andhra Pradesh

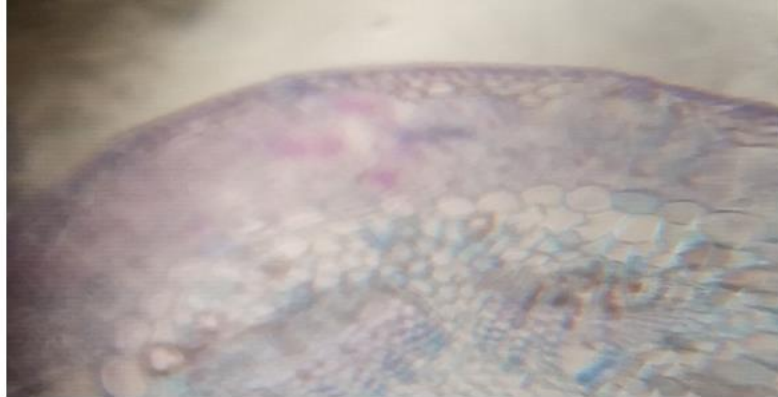


Foldscope image of Algae in stagnant water taken during Foldscope workshop held at M.L.R. Naidu Degree College, Narasannapeta – Andhra Pradesh



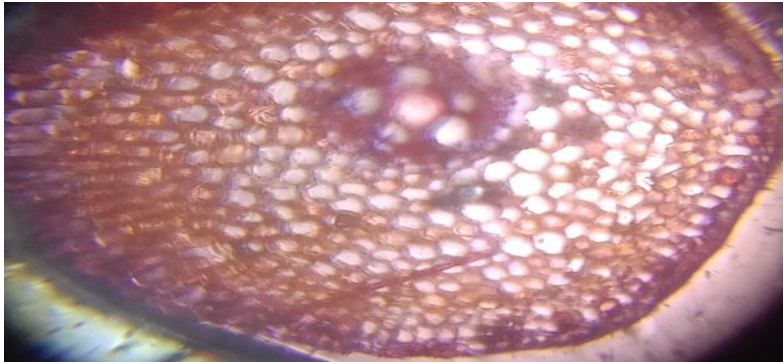
Foldscope image of Ground nut stem taken during Foldscope workshop held at Gayatri Degree College, Srikakulam – Andhra Pradesh

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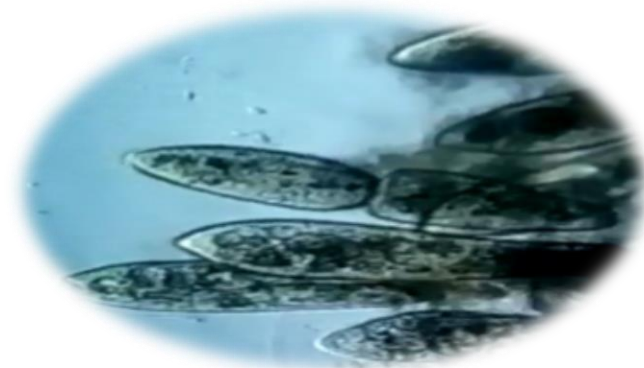


Foldscope image of Dicot leaf taken during Foldscope workshop held at Government Degree College (Women), Visakhapatnam – Andhra Pradesh

- **Number of workshops conducted:** 61 (Organized 45 & attended as mentor for 16)
  - **Number of Students Trained:** Nearly 5000 Students which include B. Sc, Inter and schools)
  - **Type of activities conducted using Foldscope:** Workshops, Trainings, Small Projects, Diagnosis kits development, Research & Education etc
2. **Any specific new observations made:** Yes / No, if yes, details thereof: Yes.  
The foldscope is very useful & excellent tool for the plant anatomical studies like shoot, leaf, root cross sections.



T.S of Onion Root Tip observed under Foldscope stained with Safranin



Binary fission in Paramecium observed under Foldscope

3. Whether registered under <https://microcosmos.foldscope.com>: Yes

All the 10 Foldscopes were registered by me and our students who are actively involved in the foldscope activities and uploaded the images, photos and videos. Details as given below

S. No	Name of the Registered Candidate	Designation	Foldscope ID	Login Details	
				User ID	Pass Word
1	Mr. Madhamanchi Pradeep	Foldscope PI	0002066A230B	pradeepdbtfoldscope	jala@143
2	Miss Ippili Gayatri Ratnam	Student	00027B0733E6	Gayatri Ratnam Ippili	@gayatri
3	Mr. Paidi Hemanth	Student	00020DFD6FFF	Hemanth	Heman143@
4	Miss Ronanki Rajani	Student	00027F6237FB	Rajani	7095279861
5	Miss Boddepalli Rajeswari	Student	00022751DF70	Rajeswari	AMMANANNA
6	Miss S. Jaya Shree	Student	000202720D65	Jayashreeseegalla	Jayashree123
7	Miss P. Divya	Student	0002066A230B	Divya Podilapu	8465961640d
8	Miss Ch. Kavya Manasa	Student	0002BB7D4D68	Kavyachalla2000@gmail.com	Kar11118
9	Miss Yagati Cholambica	Student	0002028B0E98	Cholambica	6309838389@C
10	Miss Sanapala N Maheswari	Student	00027F6237FB	Maheswari	mahi@123

4. Number of pictures/videos posted on <https://microcosmos.foldscope.com>:

Yes, me and our team uploaded nearly 650 pictures and videos related to project work, workshops and participants feedback. Moreover we are also running one Facebook page on **Government Degree College for Men-Srikakulam-Foldscope**.

**Mr. M. Pradeep**

**Name & Signature of the Project Investigator**

**Name & Signature of the Co-Project Investigator**  
Lecturer In-Charge  
Department of Biology  
Government Degree College  
SRIKAKULAM - 532 001

Seal of Head of the Institute  
&  
**PRINCIPAL**  
Govt. Degree College (Men)  
SRIKAKULAM

**Dr. M. Babu Rao**

**Name of the Head of the institution with stamp**